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MAP
OF THE FIRST AND SECOND
ANTHRACITE COAL-FIELDS
OF PENNSYLVANIA.

—BY—

Strauch & Cochran,
Mining Engineers Pottsville Pa

1875.

LIST OF ANTHRACITE COLLIERIES IN THE ABOVE COAL FIELDS

with name of Operator Land Owner, Locality Ash and Shipments in 1874 by Strauch & Cochran

MIDDLE ANTHRACITE COAL FIELD

EAST MAHANOY

MIDDLE MAHANOY

WEST MAHANOY

SHAMOKIN

WEST SHAMOKIN AND WEST SCHUYLKILL

MIDDLE SCHUYLKILL

EAST SCHUYLKILL

BEAVER

SCHUYLKILL OR FIRST ANTHRACITE COAL FIELD

GEO. B. STRAUCH — A. M. COCHRAN

STRAUCH AND COCHRAN

MINING ENGINEERS AND SURVEYORS

POTTSVILLE, PA

REPORTS

OF THE

INSPECTORS OF MINES

OF THE

ANTHRACITE COAL REGIONS

OF

PENNSYLVANIA,

FOR THE

YEAR 1874.

HARRISBURG:
B. F. MEYERS, STATE PRINTER.
1875.

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COMMUNICATION.

To His Excellency, JOHN F. HARTRANFT,

Governor of the Commonwealth of Pennsylvania:

SIR:—In compliance with the requirements of an act of General Assembly of the Commonwealth, approved the fifth day of April, A. D. 1870, entitled "An Act for the preservation of records of inspectors of mines in the mining district of Schuylkill," I have the honor to herewith submit a report of all matter of information as have been furnished by the inspectors of mines of their respective districts, showing that one hundred and three persons lost their lives, and that three hundred and forty-two persons were maimed and injured during the year 1874.

That in Pottsville district 48 collieries were in operation, employing 4,638 persons; 33 persons lost their lives and 100 were injured.

That in Ashland district 70 collieries were in operation, employing 11,062 persons; 44 persons lost their lives and 95 were injured.

That in Shamokin district 53 collieries were in operation, employing 7,535 persons; 26 persons lost their lives and 150 were injured. The diminution in fatal accidents resulting in death are 23 less than that of 1873.

The decrease in the number of hands employed in Pottsville district, is 1,822 less than the force employed last year, yet the deaths increased to four (4.)

The increase in the number of hands employed in Ashland district is 1,667, and the decrease in deaths is nine (9) less than that of last year.

The increase in the number of hands employed in Shamokin district, is 1,479, and the decrease in deaths is 18 less than that of last year.

The total increase in the force employed is 1,324, and the total decrease in deaths is 23 less than in 1873, showing a decrease in the number of widows to be 24, and 88 orphans less than in 1873.

The causes of those casualties that resulted in death and injuries, are detailed in the subjoined report, but investigations made by coroners' inquests into the causes of fatal accidents, returned verdicts that 98 out of 103 were accidental, chiefly the result of negligence, haste and undue care, while three verdicts were given showing that others were accessary to the cause of these fatal accidents.

The season closed with a fair share of coal trade, marked with no irregularity amongst the employers and the employed. Other subjects of interest relating to the interest of the district are herewith submitted for your Excellency's consideration.

I have the honor to be, with great respect,

Your Excellency's obedient servant,

P. F. M'ANDREW, *Clerk.*

REPORT

OF THE

CLERK OF THE MINING DISTRICT OF SCHUYLKILL.

To the Senate and House of Representatives of the Commonwealth of Pennsylvania:

GENTLEMEN:—In compliance with the requirements of an act of General Assembly of the Commonwealth, approved the 5th day of April, A. D. 1870, entitled "An Act for the preservation of the records of inspectors of mines," &c., I have the honor to herewith submit my annual report of all official information and matter of record furnished me by the inspectors aforesaid, relating to all collieries in their respective districts, the condition of their ventilation, the character of the work done, the steam power and force employed, the capacities of their coal product during the year, a tabulated exhibit of the fatal casualties, the number of maimed and injured persons, the number of widows and orphans in the several districts. It is my pleasing duty to report the marked diminution in fatal accidents of 23 cases less than that of last year, though the increase in the number of employees was 1,324 over that of 1873.

In Pottsville district 48 collieries are in operation, employing 4,662 persons, of which 33 lost their lives and 100 more were injured.

In Ashland district 70 collieries are in operation, employing 11,062 persons, of which 44 lost their lives and 95 more were injured.

In Shamokin district 536 collieries are in operation, employing 7,535 persons, of which 26 lost their lives, and 150 more were maimed or injured, leaving 53 widows and 185 orphans, showing a diminution in the number of widows this year of 24, and of 88 orphans less than in 1873.

In Pottsville district the case was not so favorable, in fatal accidents the number increased to 4 deaths more than in 1873, the number of prominent mines diminished considerably, while small land sales were increased. All the slope and shaft collieries in this district generate large quantities of fire-damp, (carbureted hydrogen gas) and other noxious gases and deleterious air, with some irregularities in their management and a semi-non-compliance with the government of the mines, and a culpable want of caution, which precipitates these casualities. Mining in many of these mines must be conducted by the use of safety lamps exclusively, while in the hands of an unpracticed person, it becomes a serious matter endangering the lives

of others, while even in the hands of an old expert, can scarcely be reliable. In gaseous mines the ventilation may be well established, and its circulation apparently reliable, yet a fall of top rock or coal, may produce an instantaneous concussion of the vitiated air sufficiently powerful to cause the explosion of the safety lamps. By these unforseen accidents fatal casualties often do occur, over which it seems no one has sufficient control, being invisible agencies of destruction.

Other subjects of information relating to deep boring, developing the rock and coal formations in different localities are given, which could not be shown by any system of mining than by shafts sunk directly through the stratas, giving the dip and shade of each order of stratification with distinctness and regularity, from which their local geology may be safely understood, which in the past was a thing only to be conjectured.

Faults in these rocks, although invisible, as well as in the coal seam, are subject to the force and action of escaping gases, and may for a time escape the most experienced person, when it may suddenly be detached by the force of escaping gases, and to the miner who trusted to its apparent safety may become the very instrument of his destruction.

We here give the principal accidents at collieries during this year, showing that thirty-one persons lost their lives by falls of coal, six by falls into shafts and slopes, five by falls of rock and slate top, four by falls of props, nineteen by explosions of fire-damp, twelve by being run over by mine wagons, one by an explosion of powder, two by explosions of steam boilers, two had been suffocated by gases, four by the falling of slope and shaft cages, three by the breaking of slope chains, two being kicked by mules, and twelve others by sundry accidents, viz.: Crushed by machinery, rollers, &c. Of this number were fifteen boys under eighteen years of age.

Acknowledging our obligations to Mr. B. Bannan, for coal statistics; to Professor Peter W. Sheafer, for his coal pyramid; to Col. D. P. Brown, for his safe plan of working the Mammoth vien; to Gen. Henry Pleasants, general engineer and superintendent of P. R. C. and I. Co.'s collieries, for shaft drainage, being valuable illustrations.

Accidents under their different heads are here reviewed and descriptively commented on, viz:

Coal, rocks and slate falls are most numerous, but investigations show the victims generally contribute to such accidents very matarially for want of exercising due care and supporting the upper strata sufficiently.

Haulage in mines is a subject worthy of careful consideration; victims to this class of accidents are in a great measure blamable for inattention and hasty usage, many of which appear to consider themselves beyond any restraint.

Powder and blast accidents have little apology for the careless handling of powder, as the most ignorant persons cannot be excused on the plea of his want of knowledge of its destructiveness.

Explosions of gases command amongst the many mine casualties the highest rank and requires the largest share of practice in its management. Gases unfortunately appear not to be so well understood by many miners as should be. This conclusion had been well demonstrated by candidates under examination for the office of inspectors of mines, some of which were utter failures, yet miners of long practice. For which reason we bring to this report such information as we can conveniently collect, respecting the different constituents of gases, the uses of mine instruments, subjects on

steam engines and steam boilers taken from the works of eminent authors and submitted in this report.

Having endeavored to perform our duty in this matter, we hope our labors may be appreciated by the proper authorities who govern the interests of the Commonwealth.

Having the honer to be, with great respect,

Your obedient servant,

P. F. M'ANDREW, *Clerk*.

An Alphabetical List *of names of the collieries for* 1874.

A.

1. Anchor.....Schuylkill co.
2. Alaska.....do.
3. Alaska No. 2.....Northumbl'd co.

B.

4. Buck Ridge.....Northumbl'd co.
5. Big Mountain.....do.
6. Big Lick.....Dauphin co.
7. Ben Franklin.....Northumbl'd co.
8. Brady.....do.
9. Black Diamond.....do.
10. Burnside.....do.
11. Bear Valley.....do.
12. Brookside.....do.
13. Big Run Gap.....do.
14. Bear V. Shaft.....do.
15. Buckville.....Schuylkill co.
16. Beechwood.....do.
17. Black Heath.....do.
18. Baltimore.....do.
19. Black Valley.....do.
20. Bull Run.....do.
21. Bullock.....do.
22. Buck Mountain.....do.
23. Bear Run.....do.
24. Boston Run.....do.
25. Bear Ridge.....do.
26. Bear Ridge Tunnel,.....do.
27. Beaver Run.....do.
28. Buck Mountain.....Northumbl'd co.

C.

29. Cameron.....Northumbl'd co.
30. Coal Ridge.....do.
31. Colket.....Schuylkill co.
32. Coaldale.....do.
33. Continental.....Columbia co.
34. Colorado.....Schuylkill co.
35. Centennial.....Columbia co.
36. Cuyler.....Schuylkill co.
37. Cambrian.....do.

D.

38. Diamond, No. 2.....Schuylkill co.
39. Diamond, No. 1.....do.
40. Diamond, No. 3.....do.
41. Draper.....do.
42. Delano.....do.

E.

43. Enterprise.....Northumbl'd co.
44. Excelsior.....do.
45. East Franklin.....Schuylkill co.
46. Eagle Hill.....do.
47. Ellsworth.....do.
48. Eagle.....do.
49. Enterprise.....do.
50. Elmwood.....do.
51. East Big M. Run.....do.
52. Ellengowen.....do.

F.

53. Franklin.....Northumbl'd co.
54. Faust.....Schuylkill co.

G.

55. George Fales.....Northumbl'd co.
56. Glentworth.....Schuylkill co.
57. Glendower.....do.
58. Gilberton.....do.
59. Glendon.....do.
60. Girard.....do.
61. Girard Mammoth.....do.

H.

62. Henry Clay.....Northumbl'd co.
63. Hickory Swamp.....do.
64. Hickory Ridge.....do.
65. Helfenstine.....do.
66. Hickory Shaft.....Schuylkill co.
67. Honey Brook.....do.
68. Hamon.....do.
69. Hazle Dell.....Columbia co.
70. Hartford.....Schuylkill co.

I.

71. Indian Ridge.....Schuylkill co.

K.

72. Kalmia.....Schuylkill co.
73. Keystone.....do.
74. Knickerbocker.....do.
75. Koh-i-noor.....do.

L.

76. Luke Fidler.....Northumbl'd co.
77. Lancaster.....do.
78. Locust Gap.....do.
79. Locust Spring.....do.
80. L. Rauch Creek...Schuylkill co.
81. Lincoln.....do.
82. Lambert.....do.
83. Little Tracy.....do.
84. Landsales.....do.
85. Lawrence.....do.
86. Locust Run.....Columbia co.
87. Locust Dale.....do.
88. Lost Creek.....Schuylkill co.
89. Lehigh, No. 3.....do.

M.

90. Marshall.....Northumbl'd co.
91. Marion.....do.
92. Monitor.....do.
93. Morton.....do.
94. Middle Creek.....Schuylkill co.
95. Monitor.....do.
96. Mine Hill Gap.....do.
97. Mahanoy City.....do.
98. Malvern.....do.
99. Mammoth Drift.....do.

N.

100. North Side.....Dauphin co.
101. New Boston.....Schuylkill co.
102. New Slope.....do.
103. North Mahanoy.....do.

O.

104. Oak Dale.....Schuylkill co.
105. Oak Hollow.....do.

P.

106. Peach Mountain...Schuylkill co.
107. Primrose.....do.
108. Philadelphia.....do.
109. Preston, No. 1.....do.
110. Preston, No. 2.....do.
111. Preston, No. 3.....do.
112. Preston, No. 4.....do.
113. Phila. Colliery.....do.

R.

114. Reliance.....Northumbl'd co.
115. Royal Oak.....do.
116. Rauch Gap.....do.
117. Red Mountain.....Schuylkill co.
118. Richardson.....do.
119. Ravensdale.....do.

S.

120. Short Mountain.....Dauphin co.
121. Sharp Mountain ....Schuylkill co.
122. Shoefly .....do.
123. Sharp Mt. Slope.....do.
124. St. Clair.....do.
125, Shenandoah.....do.
126. St. Nicholas.....do.
127. Suffolk.....do.
128. Stanton.....do.
129. Swates.....do.

T.

130. Trevorton.....Northumbl'd co.
131. Thomaston.....Schuylkill co.
132. Taylorville.....do.
133. Tunnel Ridge.....do.
134. Tunnel.....Schuylkill co.
135. Turkey Run.....do.
136. Trenton.....do.

U.

137. Union.....Columbia co.

W.

138. West End.....Schuylkill co.
139. Winlack.....do.
140. Ward .....do.
141. West Big M. Run.....do.
142. West Shenandoah.....do.
143. Wm. Penn.....do.

Y.

144 York Slope.....Schuylkill co.

TABLE No. 1.

NAMES *of persons who were killed and those who died of injuries in and about the collieries in the mining district of Schuylkill, comprising the counties of Schuylkill, Northumberland, Columbia and Dauphin, respectively and the number of the districts to which they belong; also, the number of widows and orphans occasioned by these casualties during the year, ending December* 31, 1874.

DATE.	Names of the deceased.	Names of the Collieries.	No. of District.	Widow	Children.....	General Remarks.
Jan. 4,	Wm. Brodrick.....	Ellengowan	2	1	5	Died of injuries he received in the mine.
2,	Thomas Morris.....	Anchor.....	1	1	4	Died; injured by breaking of a chain.
22,	John Gallagher.....	Tunnel, No. 8	1	1	3	Killed by a fall of gangway coal.
22,	Thomas Jeffries..... 4 deaths.	.....do	1	.....	.....	Killed by the same accident.
Feb. 11,	John Ogden.....	Luke Fidler.....	3	1	2	Killed in the shaft by a fall of slate.
27,	John Westfield..... 2 deaths.	Pioneer.....	2	1	3	Killed in an airhole closing on him.
Mar. 6,	Edward Smith	Bull Run.....	1	1	5	Killed by a fall of coal.
10,	George Bonick.....	Enterprise	3	1	....	Killed; crushed by a schute in riding out.
16,	Patrick Maugan, boy.....	Eagle.....	1	.....	.....	Killed by a vicious mule.
18,	Stephen Harris.....	Taylorville	1	1	5	Killed; he fell down the slope off the truck.
19,	Michael Cram.....	Reliance.....	3	1	1	Died of injuries, from a fall of coal.
21,	Archie Mitchell.....	Phœnix No. 3.....	1	.....	.....	Killed, } The rope being frozen to the track, the descend-
21,	John M'Hale.....	.....do	1	.....	.....	Killed, } ing wagon snapped it in two, resulting in the
21,	John R. Davis, boy.....	.....do	1	.....	.....	Killed, } death of three persons.
30,	Dennis Keho, boy..... 9 deaths.	Big Lick.....	3	.....	.....	Killed by a fall of a piece of timber.
Apr. 4,	Edward Monaghan.....	Big Mine Run.....	2	.....	.....	Killed by a premature discharge of a blast.
4,	Thomas Conner..	Preston, No. 3.....	2	1	5	Killed by a fall of coal.
13,	John Nevin	Big Mine Run.....	2	1	....	Killed by an explosion of fire-damp.
14,	Wm. Reed.....	Anchor.....	1	1	5	Killed by an explosion of fire-damp.
17,	John Leitzman.....	Koh-i-noor.....	2	1	....	Killed by a fall of coal.
24,	Wm. Mentz	Shenandoah City.....	2	.....	.....	Killed by a fall of coal.
25,	Jacob Honniker	Eagle.....	1	1	6	Killed by a fall of coal.
25,	Thomas Stack.....	Plank Ridge.....	2	1	4	Killed by a fall of coal.

Apr.	27,	Henry Collins	Lehigh, No. 8	1			Killed by falling off a breaker building.
	31,	Wm. Brooks, boy	Short Mountain	3			Killed ; run over by loaded wagons in the slope.
		10 deaths.					
May	2,	Ofiro Goffrey, boy	Williamstown	3			Killed ; crushed between the wagons and a schute.
	2,	John Malin	Taylorville	1			Died ; injured by a fall of a platform.
	7,	Jeremiah Griffith	Thomas	2	1	1	Killed by a fall of coal.
	19,	Peter Carbos	Brookside	3	1	4	Killed by a fall of slate.
	20,	Henry Williams, boy	Hickory Shaft	1			Died of injuries he received in the mine.
	23,	Edward Hackey	Big Mine Run	2	1	6	Died of injuries he received in the mine.
	29,	Thomas Campfield	Beechwood	1	1	4	Died from effects of a cold contracted in the mine.
		7 deaths.					
June	2,	Ebenezer Sheppard	Tunnel, No. 8	1			Killed by an explosion of fire-damp.
	8,	Thomas Mooney	Ravensdale	1	1	6	Died ; mortally burned by fire-damp.
	8,	Willie Rasbach, boy	Big Lick	3			Killed ; crushed in the rollers.
	11,	Edwin Holvey	Tamaqua	1			Killed in the mines.
	11,	Lewis Magdeburg	Ashland district	2			Died of injuries he received from a fall of coal.
	15,	Chas. Syngovich	Hickory Swamps	3			Killed by a fall of coal and slate.
	15,	Thomas M'Andrews	Preston, No. 1	2			Killed by a fall of coal.
	23,	James Walsh	Beechwood	1	1	7	Killed by an explosion of fire-damps.
	23,	William Kelly	do	1	1	6	Died from effects of the same explosion.
	23,	Thomas Owens, boy	do	1			Died from effects of the same explosion.
		10 deaths.					
July	2,	Lewis Weihl	Grant	2			Died from being scalded by steam.
	11,	John Walsh	Colorado	2	1	6	Killed ; being upset in descending the slope.
	15,	William Hoiser	St. Nicholas	2	1	6	Killed by the fall of a plank.
	22,	James Clarey	Glen Carbon	1			Killed ; thrown off the slope cage.
	27,	Edward M'Cormack, boy	Anchor	1			Killed by an explosion of fire-damp.
	27,	Thomas Edwards, boy	do	1			Killed by the same explosion.
	28,	Charles Miller	Short Mountain	3			Killed by an accident in the mine.
		7 deaths.					
Aug.	7,	Isaac Derker	Short Mountain	3	1	6	Died ; injured by a fall of props and coal.
	12,	James Bowden	Luke Fidler	3			Killed ; he fell in the new shaft.
		2 deaths.					
Sept.	1,	John Hoar	Lost Creek	2			Died from injuries from a fall of coal.
	2,	Edw. Chambers	Shenandoah City	2			Killed by an explosion of fire-damp.
	17,	Jacob Potosky	Third District	3			Died of injuries received in the mines.
	17,	Patrick Delaney	L. Rauch Creek	3			Killed by a fall of coal
	18,	Wm. Duffy	Koh-i-noor	2	1	1	Killed by a fall of coal.
	18,	Thos. H. Maguire	Marion	3			Killed by a fall of coal.
	20,	Andrew Underwood	Anchor	1			Died from effects of an explosion of fire-damp.
	26,	Michael Barrett	Raven Run	2	1	2	Killed by fall of coal.
	26,	Archibald Rush	Tunnel, No. 8	1			Killed by a log rolling over his body.
	26,	Edw. Brophy	Anchor	1			Died ; mortally burned by fire-damp.

TABLE No. 1—*Continued.*

Date.	Name of the deceased.	Name of Collieries.	No. of District.	Widow.	Children.	General Remarks.
Sept. 26,	Levi Heim	Trevorton	3			Died; mortally burned by fire-damp.
28,	Hugh Mullowney	Girardsville	2	1	5	Killed by a fall of coal.
28,	Caleb Snyder	Stewartsville	3	1	5	Killed; crushed to death by props.
28,	John Malone	Bear Run	2	1	2	Died; mortally burned by an explosion of powder.
	14 deaths.					
Oct. 3,	Patrick Foy	Lehigh Navigation Co	1			Killed; run over by wagons in the gangway.
6,	Lyman Clymer	Grant	2			Died; crushed by a fall of coal.
16,	Wm. Mulhall	Continental	2			Killed by the slope rope breaking at the sockets.
21,	Patrick Monaghan	Indian Ridge	2			Killed by a fall of coal.
22,	Charles Divers	Honey Brook	2			Died of injuries he received in the mines.
23,	Michael Brannan, boy	Buckville	1			Killed; run over by wagons.
23,	Jas. Delaplane	Big Mountain	3			Died; mortally burned by fire-damp.
24,	Evan Price	Williamstown	3			Died; mortally crushed by wagons.
26,	Martin Brinnan	Mariam	3	1	5	Died; mortally burned by fire-damp.
	9 deaths.					
Nov. 2,	Rosser Rodrick	Buckville	1			Killed by an explosion of fire-damp.
3,	Samuel Umberger	Burnside	3			Killed in riding on the slope cage.
10,	John Curran	Mine Hill Gap	1	1	8	Killed by an explosion of fire-damp.
10,	Lewis Burns	Mine Hill Gap	1			Killed by the same explosion.
11,	Austin M'Grail	Plank Ridge	2	1	6	Killed by a fall of coal.
13,	John Booth	Plank Ridge	2			Died of injuries from a fall of coal.
12,	Dennis Collins	Bear Ridge	2	1	3	Killed in riding out the gangway.
16,	Chas. Stauffenberg	Keystone	2	1	3	Died; was crushed by wagons.
20,	James Mahony	Lawrence	2	1		Killed; tilted out of a descending slope wagon.
20,	Abel Davis	Glendon	2	1	6	Killed by falling of the slope gate.
23,	James Mangan	Locust Gap	3	1	3	Killed by a fall of gangway slate.
23,	John Breen	Koh-i-noor	2	1	4	Died in the mine of heart disease.
24,	Dennis Colohan	Primrose	2			Killed by a piece of coal falling off a pillar.
28,	Michael Whalen	Big Mine Run	2	1	2	Killed by a prop, forced against him.
	14 deaths.					
Dec. 1,	James Meigg, boss	Girard	2	1	3	Died; found suffocated by noxious gases.

1,	George Fould	E. Mine Shafts	1	1	1	Killed; being tilted out of shaft bucket.
1,	John Hile	New Boston	2	....	....	Killed; his head being crushed by cars.
1,	Cornelius Flym	Plank Ridge	2	....	....	Died of injuries he received from a fall of coal.
3,	John Smith	Monitor	3	....	....	Killed by a fall of coal while mining it.
4,	Hugh M'Tague, boy	Coaldale	1	....	....	Killed by falling into the coal bins.
5,	Michael Cafferty	Monitor	3	....	....	Killed by a fall of coal.
11,	John Beundy	Mariam	3	....	....	Killed by a fall of coal.
12,	Thomas Roan	New Philadelphia	1	1	3	Killed by a fall of rocks.
19,	Samuel T. Bateman	Short Mountain	3	....	....	Died from injuries received from a fall of coal.
21,	Lewis Wethers	East End	3	....	....	Died from injuries received from being kicked by a mule.
May 20,	John Conway, boy	Preston, No. 2	2	....	....	Killed; being crushed between wagons.
25,	Edw. Hogens	Grant	2	....	....	Killed by an explosion of a steam boiler.
June 15,	Jas. Steitzler, boy	Second District	2	....	....	Killed; being run over by wagons.
No date,	Patrick Farrell	Big Mine Run	2	....	....	Killed by a fall of coal.
No date,	Thomas Harris, boy	Union	2	....	....	Killed; run over on the bank by wagons.
	16 deaths.					

One hundred and four (104) persons came to their death by the foregoing casualties, against one hundred and twenty-six in 1873.

RECAPITULATION OF THE CHARACTER OF THESE CASUALTIES.

31 persons lost their lives by falls of coal.
6..do....do.....do....by falling into slopes and shafts.
4..do....do.....do....by falling of rock and top slate.
4..do....do.....do....by falling of timber and props.
19..do....do.....do....by explosions of fire-damp.
1..do....do..his life...by an explosion of powder.
1..do....do.....do....by an explosion of a blast.
2..do....do..their lives by explosions of steam boilers.
12..do....do.....do....by being crushed by wagons.
2..do....do.....do....by being suffocated by gases.
4 .do....do.....do....by falling off slope and shaft cages.
3..do. do.....do....by breaking of chains and ropes.
2..do....do.....do....by being kicked by mules.
1..do ...do..his life...by being crushed by machinery.
1..do....do.....do....by being crushed in the rollers.
11..do....do..their lives by sundry accidents.

104..do....do.....do....by the aforesaid casualties.

Of this number 15 were boys under 18 years of age.

A condensed exhibit of casualties in this district during the six years ending December 31, *A. D.* 1874:

FATAL CASUALTIES.	1874.	1873.	1872.	1871.	1870.	1869.	Total.
Falls of coal	31	47	25	34	38	18	193
Fell into slopes and shafts	6	8	10	5	26	5	60
Fall of rocks and top slate	4	3	9	7	7	2	32
Fall of timber and props	4	1	3	4	.....	1	13
Explosions of fire-damp	19	23	17	26	6	2	93
Explosions of powder	1	2	3	5	1	6	18
Explosions of blasts	1	6	1	6	6	2	22
Explosions of steam boilers	2	1	.....	1	6	.....	10
Crushed by wagons	12	12	14	12	9	4	63
Suffocated by gases	2	.....	3	2	.....	.....	7
Fell off cages and buckets	4	.....	.....	2	2	5	13
Breaking of ropes and chains	3	7	1	2	1	.....	14
Injured by mules	2	1	.....	1	2	.....	6
Crushed in machinery	.....	2	2	4	6	5	19
Crushed in rollers	1	4	2	3	4	1	15
Sundry accidents	12	9	1	15	15	5	57
Total deaths	104	126	91	129	129	56	635
Maimed and injured	342	379	265	406	298	91	1,771
Widows	43	74	49	66	81	30	343
Orphans	160	273	169	257	280	150	1,289
Total casualties	649	852	574	858	788	327	4,038

SCHUYLKILL COUNTY.

Statistics of Casualties for the six years ending December 31, A. D. 1874, inclusive.

Annual Casualties.	1874.	1873.	1872.	1871.	1870.	1869.	Total
Falls of coal	24	37	21	26	37	18	163
Falls into slopes and shafts	4	7	8	6	4	5	34
Falls of rocks and top slate	2	3	4	5	5	2	21
Explosions of fire-damp	16	10	15	26	8	2	77
Explosions of powder	1	1	9	2	1	6	20
Explosions of blasts	1	2	.....	5	4	2	14
Explosions of steam boilers	2	.....	.....	1	5	.....	8
Crushed by wagons	7	7	.....	8	15	4	41
Crushed by timbers	2	1	3	1	1	1	9
Cage accidents	2	.....	2	2	6	5	17
Rope and chain accidents	4	6	1	3	12	.....	26
Animal accidents	2	1	.....	.....	3	.....	6
Machinery accidents	2	6	1	5	.....	5	19
Roller accidents	.....	4	2	3	4	1	14
Miscellaneous	9	6	3	9	7	5	39
Total deaths	78	91	69	102	112	56	508
Maimed and injured	226	321	226	339	252	86	1,450
Widows	36	47	39	57	70	30	279
Orphans	140	183	128	162	250	150	1,013
Grand aggregate	480	642	462	660	684	322	3,250

NORTHUMBERLAND COUNTY.

Statistics of Casualties for the six years ending December 31, A. D. 1874, inclusive.

Annual Casualties.	1874.	1873.	1872.	1871.	1870.	1869.	Total
Falls of coal	6	9	4	7	5	.....	31
Falls into slopes, &c	1	3	.....	1	.....	.....	5
Falls of rock and slate	2	1	1	2	2	.....	8
Explosions of fire-damp	3	12	3	1	2	.....	21
Explosions of blasts	.....	1	.....	1	.....	.....	2
Crushed by wagons	.....	5	.....	5	2	.....	12
Crushed by timbers	1	.....	.....	1	1	.....	3
Cage accidents	1	.....	.....	.....	.....	.....	1
Machinery accidents	.....	.....	.....	1	1	.....	2
Miscellaneous accidents	2	1	.....	1	1	.....	5
Total deaths	16	32	8	20	14	.....	90
Maimed and injured	92	46	26	54	35	.....	253
Widows	6	20	4	8	7	.....	45
Orphans	16	42	16	26	26	.....	126
Aggregate	130	140	54	108	82	.....	514

COLUMBIA COUNTY.

Statistics of Casualties for the six years ending December 31, A. D. 1874, inclusive.

ANNUAL CASUALTIES.	1874.	1873.	1872.	1871.	1870.	1869.	Total
Falls of coal	.....	.....	.....	.....	1	.....	1
Explosions of fire-damp	.....	.....	1	3	.....	.....	4
Explosions of powder	.....	.....	1	.....	.....	.....	1
Explosions of blasts	.....	1	1	.....	.....	.....	2
Crushed by wagons	1	.....	2	.....	.....	.....	3
Cage accidents	.....	.....	.....	1	.....	.....	1
Rope and chain accidents	1	.....	.....	1	.....	.....	2
Animal accidents	.....	.....	.....	1	.....	.....	1
Roller accidents	.....	.....	.....	.....	1	.....	1
Miscellaneous accidents	.....	.....	2	1	.....	.....	3
Total deaths	2	1	7	7	2	.....	19
Maimed and injured	8	7	10	12	9	.....	46
Widows	.....	1	3	1	1	.....	6
Orphans	.....	4	12	1	4	.....	21
Aggregate	10	13	32	21	16	.....	92

DAUPHIN COUNTY.

Statistics of Casualties for the six years ending December 31, A. D. 1874, inclusive.

ANNUAL CASUALTIES.	1874.	1873.	1872.	1871.	1870.	1869.	Total
Falls of coal	2	.....	1	.....	1	.....	4
Falls of rock and slate	.....	.....	4	.....	.....	.....	4
Explosions of fire-damp	.....	2	.....	1	.....	.....	3
Explosions of blasts	.....	.....	.....	2	.....	.....	2
Crushed by wagons	3	1	2	2	.....	.....	8
Crushed by timbers	1	.....	.....	.....	.....	.....	1
Cage accidents	.....	.....	.....	1	.....	.....	1
Roller accidents	1	.....	.....	.....	.....	.....	1
Miscellaneous accidents	1	.....	1	.....	.....	.....	2
Total deaths	8	3	8	6	1	.....	26
Maimed and injured	16	5	13	14	2	.....	50
Widows	1	2	3	1	1	.....	8
Orphans	6	.....	11	6	3	.....	26
Aggregate	31	10	35	27	7	.....	110

CONDENSED COUNTY CASUALTIES IN SIX YEARS.

YEARS.	SCHUYLKILL.				NORTHUMBL'D.				COLUMBIA.				DAUPHIN.				Aggregate casualties.
	Killed.	Maimed.	Widows.	Orphans.	Killed.	Maimed.	Widows.	Orphans.	Killed.	Maimed.	Widows.	Orphans.	Killed.	Maimed.	Widows.	Orphans.	
1869...	56	86	30	150	....	....	....	....	....	....	....	....	....	....	....	....	322
1870...	112	252	70	250	14	35	7	26	2	9	1	4	1	2	1	3	789
1871...	102	339	57	162	20	54	8	26	7	12	1	1	6	14	1	6	816
1872...	69	226	39	128	8	26	4	16	7	10	3	12	8	13	3	11	583
1873...	91	321	47	183	32	46	20	42	1	7	1	4	3	5	2	....	805
1874...	78	226	36	140	16	92	6	16	2	8	....	....	8	16	1	6	661
	508	1,450	279	1,013	90	253	45	126	19	46	6	21	26	50	8	26	3,966

A list of names of persons who were maimed and injured in and about the mines, in the mining district of Schuylkill, during the year ending December 31, A. D. 1874.

DATE.	Names of maimed persons.	Names of the Collieries.	No. of local district.	Remarks.
Jan. 7,	John Gibbons	Mapledale	2d	Back crushed between screen and rollers.
7,	Patrick Griffith	do	2d	Severely injured by a segment of a screen.
8,	John Holmes	Buck Ridge	3d	Hand crushed by a fall of rocks.
9,	An old man	East Delaware	1st	Severely injured by falling into an old opening.
10,	John Roberts		1st	Thumb cut off by a lump of coal.
10,	Patrick Gollagher	Turkey Run	2d	Leg broken by a fall of coal.
10,	Wm. Purcell	Anchor	1st	Head injured by a falling prop.
13,	Frank Walters	Indian Ridge	2d	Finger cut off by a fall of coal.
14,	Dominick O. Donnell	Lehigh, No. 4	1st	Hand broken by a piece of falling timber.
14,	Thomas Brannan	Mine Hill Gap	1st	Back severely injured by a fall of coal
16,	Edward Polkenhorn	Furnace	2d	Head and arm crushed by a fall of coal.
16,	Patrick Carey	Wm. Penn	2d	Hand split in two by a fall of coal.
18,	John H. Hampton	Koh-i-noor	2d	Hand injured by a stroke of a pick.
18,	Frank Garvey	do	2d	Arm broken by a fall of coal.
18,	Robert Mills	Shenandoah City	2d	Collar bone broken by a fall.
21,	Richard Fotheringill	E. Franklin	3d	Eyes, ribs and fingers injured by a blast.
21,	John Donohoe	do	3d	do do do.
25,	Stephen Jones. 18 injuries.	Anchor	1st	Side severely injured, a pully fell on him in the slope.
Feb. 27,	A German	Pioneer	2d	Severely injured by closing in of an air-way.
27,	George Leonard	Gilberton	2d	Dangerously injured—fell 100 yards down a slope.
28,	Stephen Alsopp	Wm. Penn	2d	Dangerously injured by a fall of coal.
29,	Wm. Dunkelberger	do	2d	Knee fractured between wagons.
	12 others. 16 injuries.		1st	Not officially reported.
March 6,	Henry Fury	Lentz & Bowman	2d	Hand crushed by a fall of coal.
6,	Edward Horan	Bear Valley Shaft	3d	Severely injured by an explosion of powder.
7,	James Stone	Beechwood	1st	Head severely cut by a fall of coal.
11,	Elijah Moerton	Bear Valley	3d	Severely injured by an explosion of cartridge.
11,	Thomas M'Hale	Turkey Run	2d	Severely injured by a fall of coal.

LIST OF PERSONS MAIMED AND INJURED—Continued.

Date.	Names of maimed persons.	Names of the Collieries.	No. of local district.	Remarks.
Mar. 11,	Patrick M'Manamon	Girard	2d	Leg broken in starting a battery.
11,	Martin Quinn	....do	2d	Toes cut off by being run over by wagons.
12,	Joseph Hughes	Continental	2d	Leg broken, run over by wagons.
12,	Isaac Wynn	Primrose	2d	Head severely injured, fell down a manway.
12,	John Preston	Koh-i-noor	2d	Head crushed by wagons.
14,	Thomas Maguire	Keystone	2d	Leg broken and internally injured by wagons.
20,	William Ware	Cameron	3d	Head fractured by fall of timber.
21,	Richard Davis	Phœnix, No. 3	3d	Severely injured, the rope slipped its socket and precipitated four men down the slope, who received severe injuries.
21,	Edward Morgan	....do	3d	
21,	John King	....do	3d	
21,	M. Purcell	....do	3d	
21,	Peter Brosert	E. Franklin	3d	Hips crushed in a fall off the breaker.
24,	William Wise	Cameron	3d	Severely injured by a fall of trestleing.
24,	Frank Morgan	Ravendale	1st	Head crushed, he being dragged by wagons.
24,	Ashton Graver	Swatara	3d	Crushed severely by wagons.
25,	Edward Williams	Lower Rauch Creek	3d	Crushed severely by a fall of coal.
31,	James Eddie	Short Mountain	3d	Severely burned by an explosion of gas.
31,	William Wesner	....do	3d	
31,	Sam'l Wesner	....do	3d	
31,	Jacob Wengert	....do	3d	
	25 injuries.			
April 2,	Edward Monaghan	Big Mine Run	2d	Mortally injured by a fall of coal—died same day.
6,	Nat. Morgan	West End	3d	Legs broken by a fall of slate.
8,	Nicholas Nevils	Shenandoah City	2d	Severely burned by an explosion of fire-damp.
8,	William Roberts	Wm. Penn	2d	Hand severely cut with an axe.
8,	Michael Mitchel	Plank Ridge	2d	Severely crushed by wagons.
8,	Joseph Border	Bear Run	2d	Leg broken in riding up the slope.
10,	Ebenezer Morris	Tunnel Ridge	2d	Dangerously burned by an explosion of powder.
13,	John Cookley	Shenandoah City	2d	Ankle crushed by a wagon.
14,	George Jones	Anchor	1st	Dangerously burned by fire-damp.
14,	Thomas Rowland	Locust Gap	3d	....do....injured by a fall of slate while working.

	23,	John M'Cawley	Elmwood	2d...	Skull fractured by a fall of coal.
	23,	Antonie Gubenas	....do	2d...	Severely crushed in riding up the slope.
	23,	John Nolan	Luke Fidler	3d...	....do.....do....he fell 50 feet out of shaft bucket.
	25,	John Malin	Taylorville	1st..	Arms broken and head crushed, died subsequently.
	25,	Dan. Codrington	Buckville	1st..	Leg broken by a fall of coal.
	25,	Irvin Noon	Pyne Shaft	3d...	Severely injured by a blast.
	27,	Jacob Lauer	Bear Valley	3d...	Leg broken by a fall of coal.
	29,	John Rodgers	Locustdale	2d...	Severely crushed in the mines.
		18 injuries.			
May	2,	William Keating	Colket	3d...	Leg broken on the dirt bank by wagons.
	2,	Henry Field	Tunnel Ridge	2d...	Foot crushed by a piece of coal.
	5,	John Harris	Primrose	2d...	Leg broken; a mule fell upon him.
	5,	Dan. Weist	Mariam	3d...	Foot crushed on the dirt bank.
	6,	Wm. H. Moyer	Lower Rauch Creek	3d...	Leg broken; run over by wagons.
	6,	Wm. Barr	Cameron	3d...	Hips dislocated by a fall of coal.
	6,	Julius Weimer	....do	3d...	Leg broken by the dumper outside.
	7,	Ed. Bytheway	Silliman	2d...	Shoulder fractured by a fall of coal.
	9,	Patrick Murphy	Taylor and Lindsy	2d...	Severely burned by fire-damp.
	9,	Patrick Dolan	....do.....do	2d...	Severely burned by fire-damp.
	11,	Patrick M'Clane	Lehigh No. 3	2d...	Severely crushed by wagons.
	11,	Robert Parker	Mariam	3d...	Severely crushed; run over by wagons.
	11,	John Coyle	Lower Rauch Creek	3d...	Ribs crushed by a fall of coal.
	13,	James Gallagher	Lehigh No. 9	1st..	Severely burned by an explosion of gas.
	13,	M. Brannan, boy	Coal Ridge	3d...	Arm broken; he fell into the sump.
	13,	Enoch Ratscoff	Stewartsville	3d...	Severely burned by an explosion of powder.
	13,	Zebulen Sipple	.....do	3d...	Severely burned by an explosion of powder.
	13,	Wm. W. Kimp	George Fales	3d...	Severely injured by falling into a cross-cut.
	14,	A Polander	Cameron	3d...	Hips dislocated by a fall of rocks.
	14,	Henry Lewis	Ellengowan	2d...	Neck injured by a drill crushing it.
	14,	Richard Weeks	Trenton	2d...	Severely burned by an explosion of powder.
	15,	John Ellard	Burnside	3d...	Dangerously injured by a fall of rock.
	15,	A Polish miner	.....do	3d...	Dangerously injured by a fall of rock.
	15,	Fred'k Gersner	Ben Franklin	3d...	Slightly injured in barring down slate.
	15,	Joseph Troutman	Cameron	3d...	Head crushed in coupling wagons.
	15,	Joseph Lockett	St. Clair Shaft	1st..	Fingers crushed by a fan.
	16,	Edw'd Moore	L. Rauch Creek	3d...	Hand crushed in getting up the slope.
	16,	John Moyer	.....do	3d...	Severely crushed by a dumper.
	16,	A miner of	Bear Valley	3d...	Nearly suffocated by noxious gas.
	16,	Cornelius Sheaffer	Lincoln	3d...	Leg broken by a fall of rocks.
	18,	Walter Steeples	Brookside	3d...	Severely injured by a fall of slate.
	18,	John Coyle	L. Rauch Creek	3d...	Head and ribs crushed by a fall of coal.
	18,	George Evans	.....do	3d...	Leg broken by a fall of coal.
	20,	Henry R. Davis	Anchor	1st..	Severely burned by fire-damp.

LIST OF PERSONS MAIMED AND INJURED—Continued.

Date.	Names of maimed persons.	Names of the Collieries.	No. of local district.	Remarks.
May 27,	William Keil	L. Rauch Creek	3d...	Shoulder dislocated by a fall in the slope.
27,	Thomas Mooney	Ravendale	1st..	Severely burned by fire-damp.
27,	Lewis Harris	L. Rauch Creek	3d...	Leg broken by a fall of coal.
	37 injuries.			
June 2,	John Day	Lehigh, No. 8	1st..	Severely burned by fire-damp.
2,	John Thomas	....do	1st..	Severely burned by fire-damp.
2,	Chas. Dougherty	Locust Gap	.....	Hand crushed by a wagon.
2,	Peter Garvey	Preston, No. 3	2d...	Severely burned by a blast.
2,	Charley Leary, 14 years	Thomaston	1st..	Arm broken by a fall of rocks.
2,	Simon Herwig	Plank Ridge	2d...	Severely crushed by wagons.
2,	Ebenezer Sheppard	Coaldale	1st..	Mortally injured in the mine—died.
4,	Jonas Smith	Ravendale	1st..	Severely burned by fire-damp.
4,	Hugh Hogan	....do	1st..	Severely burned by fire-damp.
4,	Thomas Kilbride	....do	1st..	Severely burned by fire-damp.
4,	Lawrence Dalton	....do	1st..	Severely burned by fire-damp.
4,	John Higgins	....do	1st..	Severely burned by fire-damp.
4,	Thomas Gibbons	Reliance	3d...	Arm dislocated by a fall of coal.
5,	Thomas Dunn	Ravendale	1st..	Severely injured by a fall of coal.
5,	James Hagerty, boy	Forestville	1st..	Severely injured—run over by wagons.
5,	Jacob Rodrian	Girardsville	2d...	Severely burned by an explosion of fire-damp.
5,	David Leiser	....do	2d...	Severely burned by an explosion of fire-damp.
8,	Michael Dolan	Beechwood	1st..	Arm broken—he fell off a timber truck.
10,	Charles Brannan	Anchor	1st...	Seriously injured.
12,	John Griffith	Third District	3d...	Seriously burned by a blast.
15,	Frank Delbow	Luke Fidler	3d...	Dangerously injured by a fall of rocks.
15,	Samuel Eatton	....do	3d...	Dangerously injured by a fall of rocks.
15,	John M'Donnell	Burnside	3d...	Hand crushed by wagons.
16,	Joseph Brannan	Wm. Penn	2d...	Leg crushed on the dirt bank.
18,	A miner	Furnace	2d...	Slightly injured by a blast.
20,	David Harris	Anchor	1st,.	Severely burned by fire-damp.
22,	Michael Ryan	Wm. Penn	2d...	Leg broken by a fall of coal.

22,	David Smith	Beechwood	1st..	Hip dislocated by a fall of coal.
22,	Patrick Donovan	....do	1st..	Fingers cut off by a fall of coal.
22,	Edward Haley	Big Mine Run	2d...	Mortally crushed by a fall of coal; died
22,	Samuel Roden	Buck Ridge	3d...	Slightly injured by a blast.
22,	Patrick M'Intire	Brady	3d...	Slightly injured by a blast.
22,	Henry Neargarde	Tunnel	2d...	Severely crushed by wagons.
23,	Thomas Owens	Beechwood	1st...	Terribly burned by fire-damp.
23,	Henry Waters	....do	1st...	Severely injured by the concussion.
25,	John Hayse	Sillyman	2d...	Leg cut off by a fall of coal.
25,	Wm. Sheehan	Lincoln	3d...	Leg broken by a fall of slate.
27,	Wm. Powell	Mine Hill Gap	1st...	Severely burned by fire-damp.
27,	Jacob Symmit	....do	1st...	Severely burned by fire-damp.
28,	John Whalen	Locustdale	2d...	Leg broken in getting off a wagon.
29,	John M'Hugh	Greenback	3d...	Leg broken in getting on a wagon.
29,	Jacob Daubbert	L. Rauch Creek	3d...	Dangerously injured by a fall of coal.
29,	James Miller	Preston	2d...	Mortally injured by a fall of coal.
29,	Thomas Holburn	Tunnel Ridge	2d...	Severely scalded by a boiler explosion.
29,	Lewis Weihl	....do	2d...	Severely scalded by a boiler explosion.
29,	Thomas Horan	Union	2d...	Dangerously kicked by a mule.
30,	James Roach	Locust Gap	3d...	Severely burned by fire-damp, which had been ignited in the E. gangway, forcing it to where the men worked with safety lamps—the careless act of other persons.
30,	John Stulfox	....do	3d...	
30,	Thomas Churchhill	....do	3d...	
30,	Jacob Wagner 50 injuries.	Monitor	3d...	Leg broken by a fall of coal.
July 1,	Abraham Duyre	Mahanoy city	2d...	Severely injured by a fall of coal.
2,	Dennis Conner	Williamstown	3d...	Head crushed while coupling wagons.
6,	James Flaherty	Plank Ridge	2d...	Severely burned by fire-damp.
6,	George Beck	....do	2d...	Foot crushed by pipes falling on it.
14,	Henry Kroll	Tamaqua	1st..	Severely crushed by a fall of coal.
20,	John Zerby, boy	Short Mountain	3d...	Foot crushed by wagons.
21,	Thomas Powell	Enterprise	3d...	Severely burned by fire-damp.
21,	Lewis Kneily	Short Mountain	3d...	Arm broken by a blast.
24,	John Lundy	Hickory Shaft	1st..	Head fractured by a blast.
24,	Frank Heaton	Williamstown	3d...	Arm broken by a blast.
27,	J. Brannon, (Rush,)	Anchor	1st..	Severely burned by fire-damp.
27,	Cyrus Straus	Lower Rauch Creek	3d...	Slightly burned by fire-damp.
27,	Casper Buflop	....do	3d...	Slightly burned by fire-damp.
27,	James Hagerty	Anchor	1st..	Severely burned by fire-damp.
27,	John L. Evans	....do	1st..	Severely burned by fire-damp.
29,	Patrick M'Laughlin 16 injuries.	Bull Run	1st..	Thigh broken by a fall of coal.
Aug. 8,	David Andrews	Brookside	3d...	Foot severely cut by a fall of coal.
11,	Henry Mullin	Buckville	1st..	Severely crushed by a fall of coal.

LIST OF PERSONS MAIMED AND INJURED.—Continued.

Date.	Names of maimed persons.	Names of the Collieries.	No. of local district	Remarks.
Aug. 13,	John Key	Middle Creek	3d...	Slightly crushed by a fall of a cage.
14,	Peter Mitchell	Suffolk	2d...	Thigh broken and eyes injured by a fall of coal.
14,	John E. Carr	Moreton	3d...	Severely injured in the mine.
16,	Samuel Bateman	Short Mountain	3d...	Severely kicked by a mule.
21,	M. Brannan	Anchor	1st..	Severely burned by fire-damp.
21,	Patrick Conway	Lower Rauch Creek	3d...	Hip broken by a fall of slate.
21,	George Powell	Williamstown	3d...	Hip broken; run over by wagons.
23,	Patrick Falley	Stewartsville	3d...	Severely burned by fire-damp.
23,	Thomas Dalton	....do	3d...	Severely burned by fire-damp.
25,	Thomas Platt	Locust Gap	3d...	Slightly hurt by a fall of coal.
25,	M. Miller, boy	....do	3d...	Severely injured; run over by wagons.
25,	A miner	Locust Gap	3d...	Leg broken by a fall of coal.
25,	Patrick Delaney	Lehigh, No. 8	1st..	Head severely cut by a fall of slate.
28,	John Suberline	Alaska Shaft	3d...	Leg severely cut with an axe.
28,	John Dunmoyer, 17 injuries.	Lower Rauch Creek	3d...	Fingers cut off by a dumper.
Sept. 2,	Patrick Madden	Diamond	1st..	Severely burned by fire-damp.
2,	James Madden	....do	1st..	Severely burned by fire-damp.
2,	Charles Hantzinger, boy	Middle Creek	3d...	Fingers cut off by the wheels of a fan.
3,	Wm. Brannan	Colket	3d...	Fingers broken by a fall of coal.
3,	Peter Weiss	Henry Clay	3d...	Leg and arm broken by a fall of coal.
3,	John Hoar	Lost Creek	2d...	Arm broken; mortally injured; died.
4,	Richard Brace	Lancaster	3d...	Leg broken by a fall of coal.
5,	Evan Price	Williamstown	3d...	Leg broken by an accident.
8,	John Williams	Cameron	3d...	Leg horribly cut with an axe.
8,	Samuel Shutt	Williamstown	3d...	Severely injured; run over by wagons.
8,	A miner	Burnside	3d...	Severely injured by a fall of coal.
10,	Robert Orr	Trenton	2d...	Eyes injured by a stroke.
10,	Thomas Robenson	Bear Valley	3d...	Severely injured by a fall of rocks.
12,	Isaac Winn	Primrose	2d...	Severely injured; he fell down a manway.

Sept.	12,	Henry Filer	Enterprise	3d...	Severely injured by a fall of rocks.
	12,	Thomas Corl	Diamond	1st..	Severely burned by fire-damp.
	12,	Patrick Maguire	....do	1st..	Severely burned by fire-damp.
	12,	John Amford	Burnside	3d...	Back dislocated by a fall of coal.
	14,	Yarnel Long	Bear Valley	3d...	Foot crushed by a fall of coal.
	15,	Andrew Underwood	Anchor	1st..	Mortally burned by fire-damp.
	15,	Edward Foggot	....do	1st..	Severely burned by fire-damp.
	17,	Jacob Polosky	Plank Ridge	2d...	Severely crushed by wagons.
	18,	Henry Pope	Big Mine Run	2d...	Foot and face cut by a fall of coal.
	18,	Joseph Evans	Colket	3d...	Back crushed by a fall of coal.
	18,	John Humphries	....do	3d...	Severely injured in the mines.
	19,	Stancy Weldon	Henry Clay	3d...	Severely injured by a fall of coal.
	22,	Michael Malone	Bear Ridge	2d...	Severely burned by an explosion of powder.
	22,	John Malone, boy	....do	2d...	Severely burned by an explosion of powder.
	22,	Patrick Toole	William Penn	2d...	Hips broken by a fall of coal.
	25,	Patrick Mullen	Eagle Hill	1st..	Leg broken by a fall of coal.
	25,	William Reese	....do	1st..	Severely crushed in riding up the slope.
	27,	William Bush	Forestville	1st..	Severely injured by a blast.
	28,	Christian Kreiss	Colket	3d...	Arm crushed; run over by a dumper.
	29,	Reuben Webb, boy	Malvern	2d...	Arm crushed; run over by wagons.
	29,	John Haughney	Hill Side	2d...	Severely injured in the mine
	29,	John M'Cawley	Elmwood	2d...	Head fractured by a fall of slate.
	29,	William Mentz	Shenandoah City	2d...	Mortally injured by a fall of coal; died.
	30,	Benjamin Lloyd	Anchor	1st..	Severely injured; he fell through a schute.
	30,	Patrick Delaney	Lower Rauch Creek	3d...	Mortally injured by a fall of coal.
	30,	Nathan Denger	Colket	3d...	Severely injured by a premature blast.
	30,	William Miller	....do	3d...	Severely injured by a premature blast.
	30,	Frank Bressler	....do	3d...	Severely injured by a premature blast.
		42 injuries.			
Oct.	3,	Lyman Clymer	Grant	2d...	Mortally injured by a fall of coal; died.
	6,	John Booth	Plank Ridge	2d...	Severely injured by a fall of coal.
	7,	William Gross	Morton	3d...	Foot amputated; crushed by a fall of coal.
	7,	William Sintkork	....do	3d...	Severely crushed by a fall of coal.
	7,	Caleb Snyder	Stewartsville	3d...	Mortally injured in the mine; died.
	8,	Edward Ludlow	....do	3d...	Severely burned by powder.
	8,	Lydel Gurley	Bear Run	2d...	Leg broken by a fall of coal.
	12,	Dennis Harmon	New Boston	2d...	Knee crushed by wagons.
	12,	F. W. Taylor	Lost Creek	2d...	Shoulder dislocated; he fell in a breast.
	13,	Martin Dixon	Locustdale	2d...	Knee crushed by a fall of slate.
	13,	Frank Becker	Cameron	3d...	Knee crushed by a fall of coal.
	13,	J. W. Davis	Locustdale	2d...	Severely injured by a premature blast.
	14,	John Bradwick	Big Mountain	3d...	Severely injured by a premature explosion of powder.
	14,	Charley Blacker	Shenandoah	2d...	Severely injured; run over by wagons.

LIST OF PERSONS MAIMED AND INJURED.—Continued.

Date.	Names of maimed persons.	Names of the Collieries.	No. of local district.	Remarks.
Oct. 14,	Joseph Brannan	Big Mountain	3d...	Severely injured by an explosion of powder.
16,	Lewis Benawitzs,	Thomas	2d...	Leg broken; fell off a boiler flue.
21,	Martin Brinnan	Mariam	3d...	Mortally injured by an explosion of powder; died.
21,	A Pole	Locust Gap	3d...	Legs cut and crushed by cars.
22,	Patrick Monaghan	Indian Ridge	2d...	Mortally injured by a fall of coal; died.
22,	J. Delaplane	Big Mountain	3d...	Severely burned by powder.
22,	John Brannan	....do	3d...	
22,	A Pole	....do	3d...	
22,	James Moore	Ellangowan	2d...	Head and body crushed by a fall of coal.
27,	Thomas Hutton	Shenandoah City	2d...	Severely crushed by a fall of coal.
27,	Thomas Banman	Furnace	2d...	Head and body injured by the fall of a fly-wheel.
27,	Mahlon Garber	Bear Ridge	2d...	Spine injured by the fall of a building.
27,	George Ridley	Elmwood	2d...	Head and arm cut by a fall of coal.
28,	Michael Haniffe	Enterprise	3d...	Knee crushed; he fell down a slope.
28,	Thomas John	Hickory Ridge	3d...	Body crushed; run over by wagons.
28,	Thomas Hilling	Big Mountain	3d...	Leg broken by a fall of coal.
28,	George Ebby	Bear Valley	3d...	Slightly crushed by a fall of coal.
28,	Henry Fry	.....do	3d...	Head crushed by a fall of coal.
28,	William Fry, (boy)	.....do	3d...	Legs crushed by a fall of coal.
29,	John Shults	Cameron	3d...	Body crushed by a fall of rocks.
29,	7 other injuries			Not officially reported.
29,	Patrick Durkin	St. Clair	1st..	Head, ankle and body crushed by a fall of coal.
29,	Joseph Taylor	....do	1st..	Foot crushed by wagons.
29,	Peter Higgins	....do	1st..	Head and breast crushed by wagons.
29,	Tobias Donnelly	Hickory Shaft	1st..	Severely burned by fire-damp.
30,	John Hopkins	Wm. Penn	2d...	Back injured by a fall of coal.
31,	Isaac Buckle	Big Mountain	3d...	Feet cut off; run over by wagons on the plane.
31,	Wm. Clayberger	Buck Ridge	3d...	Head and eyes injured in riding out of the mine.
31,	Isaac Strausser	Greenback	3d...	Knee crushed by wagons.
	49 injuries.			

Nov.	1,	John Subline	Mariam	3d...	Back injured by a fall of coal.
	1,	John Evans, boy	Beechwood	1st..	Foot crushed, run over by wagons.
	2,	Frank Lewis	Wm. Penn	2d...	....do.....do.....do.
	2,	Frank Horn	Ben Franklin	3d...	Severely injured by powder.
	2,	Peter Beck	Furnace	2d...	Hand injured by a fall of coal.
	3,	Samuel Umberger	Burnside	3d...	Mortally crushed by wagons; died.
	5,	John Atkins	Beechwood	1st..	Severely crushed by a fall of coal.
	5,	Thomas Morgan, boy	....do	1st..	Severely crushed by a dumper.
	5,	Two miners	....do	1st..	Severely crushed by a fall of coal.
	5,	William Armstrong	Knickerbocker	2d...	Leg broken, run over by wagons.
	5,	Charles Winlack	Short Mountain	3d...	Head severely injured by contact with props.
	6,	Dominick Jordan	Hickory Shaft	1st..	Severely burned by fire-damp.
	8,	Thomas Thomas	Beechwood	1st..	Thigh broken by a fall of coal.
	8,	Patrick Hughes	Mine Hill Gap	1st..	Severely burned by fire-damp.
	8,	Thomas Kelly	Luke Fidler	3d...	Shoulder broken, run over by wagons.
	8,	Henry Derrick	Excelsior	3d...	Leg broken by a fall of coal.
	9,	George Cole	Glendon	2d...	Severely burned by fire-damp.
	9,	Joseph Delaney	Cameron	3d...	Severely crushed by wagons.
	9,	Joseph Evans	Colket	3d...	Foot crushed by a fall of coal.
	9,	Walter Haas	....do	3d...	Head crushed, being kicked by a mule.
	9,	A miner	....do	3d...	} Severely burned by fire-damp.
	9,	Washington Dull	....do	3d...	
	9,	Frank Bressler	....do	3d...	
	9,	Emanuel Erdman	....do	3d...	
	11,	John Davis	Locustdale	2d...	
	11,	Jacob Frantz	Eagle	1st..	Thigh broken and body injured by a fall of coal.
	13,	Charles Stoffenberg	Keystone	2d...	Severely crushed by wagons and timbers.
	13,	Thomas E. Waters	Hickory Shaft	1st..	Severely burned by fire-damp.
	16,	Patrick Gannon	Mariam	3d...	Legs broken by a fall of coal.
	16,	William Coyle, boy	Lower Rauch Creek	3d...	Arm broken, run over by wagons.
	16,	Dan Seger	Colket	3d...	Leg broken by a fall of coal.
	16,	Morris Whalen	George Fales	3d...	Thumb cut off in spragging wagons.
	20,	George Williamson	Thomaston	1st..	Severely crushed by wagons.
	20,	John Ryan Crogan	Glen Carbon	1st..	Severely burned by fire-damp.
	23,	James M'Donnell	Kentucky	1st..	Severely injured by a fall of coal.
	23,	John Maurer	Lower Rauch Creek	3d...	Arms lacerated in oiling engine, &c.
	25,	John Irwin	Girard	2d...	Severely crushed by a fall of coal.
	25,	J. C. Zimmerman	Lower Rauch Creek	3d...	Back and body crushed by a fall of rocks.
	26,	Bernard Mullegan	Eagle Hill	1st..	Leg broken by a fall of coal.
		40 injuries.			
Dec.	1,	Richard Holman	Minersville drift	1st..	Thigh broken by the sweep-pole of a gin.
	1,	A Pole	Bear Run	2d...	Leg crushed by wagons.
	2,	Ralph E. Stewart	Kalmia	3d...	Leg amputated, run over by wagons.

LIST OF PERSONS MAIMED AND INJURED—Continued.

Date.	Names of maimed persons.	Names of the Collieries.	No. of local district	Remarks.
Dec. 9,	Cornelius Flynn	Plank Ridge	2d...	Leg broken by wagons.
11,	John Beadle	Hickory Shaft	1st..	The following seven persons were severely burned by an explosion of fire-damp while in the act of mounting a collar in the gangway, one of the miners imprudently carried his head lamp and ignited the gas.
11,	John Durkin	do	1st..	
11,	Thomas O'Neil	do	1st..	
11,	John Purcell	do	1st..	
11,	Wm. Botham	do	1st..	
11,	Wm. Morgan, boy	do	1st..	
11,	John Moyer	do	1st..	
12,	Samuel Beatman	Short Mountain	3d...	Mortally crushed by a fall of coal; died.
12,	Walter Pope	do	3d...	Severely crushed by a fall of coal.
12,	A miner at	Draper	2d...	Face and eyes injured by a fall of coal.
	14 injuries.			

Making an aggregate number of maimed of 342 persons in the district of Schuylkill, as will be seen by reference to the casualty rolls of the different districts to which they are respectively assigned.

Notwithstanding our expectation of a diminution in the number of casualties, the fact is that they are larger than was anticipated, particularly so as regards the cases in Pottsville district, where the least number of collieries are operated, but are by far the oldest and deepest, and largely produce noxious gases, many of them to an alarming extent.

In the Second or Shamokin district the death and casualties are sensibly diminished, while in the Third or Ashland district there are nine cases of deaths less than was last year, while it contains the largest number of collieries, and employs the largest force. The principle causes of deaths in the First district is explosions and crushings by wagons. The mines being old, and a resort is had to robbing back the works which necessarily prevents proper ventilation, and increases an undue quantity of gases.

Mine Inspection.

The apparent necessity of a continuation of inspection of mines has been fully demonstrated by the subjoined statistics The importance of the information herewith supplied of the mortality herein exhibited, very forcibly appeals to the sympathy of a generous government for a continuation of the provisions of the act of Assembly, which provides for the safety of persons employed therein.

The fearful exhibit of casualities resulting in death and severe injuries is to be deeply deplored, besides the great amount of misery it entails upon the widows, orphans, and maimed of this class, that to properly appreciate their case would be but to participate in their distress, and in most cases this distress is extremely severe, whilst a less favored nation than ours would encourage some benevolent measures which would materially ameliorate and stay their suffering.

The consequent result of these casualities in most cases, destroys forever that glorious boon, the public instruction of those children, and in consequence of such calamities they are cast into a quagmire of ignorance, and in after life debarred from becoming useful members of society ; but on the contrary, become idle and lawless, but when the maternal feelings are aroused by compulsory necessity to procure a means of maintenance for her offspring a resort is had in most cases to the sale of intoxicating drinks, which soon become the resorts of habitual disturbers of good order and law, and a stigma upon our liberal institutions and society at home and abroad.

By legislative enactment reformitories are established all over the land for the maintenance of paupers, the infirm and destitute, and the great amount of good done by these charitable institutions is highly commendable.

But so far as distress prevails amongst the families of deserving miners, it only meets with discouragement from sources having the means and ability to institute measures of relief to alleviate their sufferings.

The portrait here presented is not at all over drawn, but an actual figure from experience gleaned from acquaintance with orphanages all over the mining regions.

Compare then, the charitable spirit evinced towards the betterment of the condition of heathens in other land, with that shown to our own poor, and will not a shroud of shame reflect its shadow on our advocates of foreign charities? but our needy people are always amongst us, and custom, which is a proverbial test, proves our sympathies, and often finds us obdurate and unfeeling towards our own sufferers, and with regret we must acknowledge

our philanthropy is not adequate to the claims presented for an exhibition of our charity at home.

Experience amongst the mining classes convinces me that their distress should receive better attention than has been the case. Necessity, natures first law, forces many of them into the traffic of the sale of intoxicating drinks which they adopt with repugnance from feelings of conscience and religion, knowing too well their domiciles will only become the resort of idle disturbers of order and society.

Impelled by a sense of justice some time ago, Franklin B. Gowen, Esq., president of the Philadelphia and Reading Railroad Company, conceived a plan of establishing a relief fund for the benefit of widows and children of the miners employed by the company, by first funding the value of one day's product of coal, and one day's pay of all employees of the company in and about their mines, and cause this annual sum to be deposited with the trustees and company, in proper form, where relief should be afforded to accredited parties by proper cheks drawn on the fund.

The company has very gratefully inaugurated this beneficial measure among their miners since the first of this year. At the suggestion of their president and their chief engineer and general superintendent, Gen. Henry Pleasants, it is now proposed to pay the sum of thirty dollars for burial expenses, and the sum of three dollars per week for one year from the date of the death of the husband to his widow, and one dollar per week to each orphan child in his family, who may be at the time under twelve years of age, providing such beneficiary of widow or children thereof shall in no way entertain or vend or in any manner be engaged in the sale or keeping intoxicating drinks, or to appropriate any of said benefits for the use of intoxicating drinks.

The Wilkesbarre Coal and Iron Company had, in 1869, established a similar fund, the proceeds of which amounted, on the 31st day of December, 1874, to $66,559 38, out of which sum $41,336 41 had been paid out as benefits, leaving a balance in the fund of the institution of $25,222 97, on the 1st day of January, 1875.

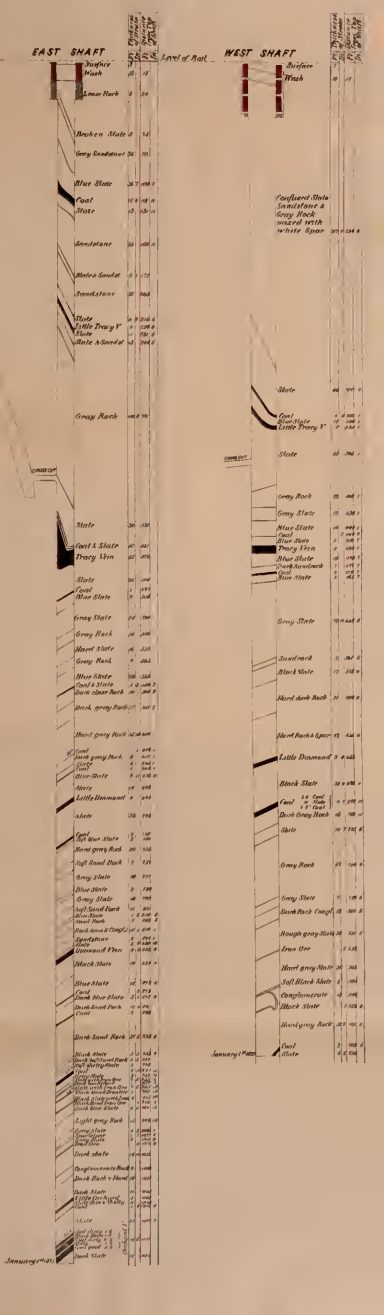
This is a laudable measure of relief, reflecting great credit upon these benefactors, while the adoption of such a measure will encourage good feeling and friendship among the miners and mine managers, that was not the case in the history of mining, besides the great relief such a measure affords the dying parent and anguish it removes from the family, the boon is a princely one, reflecting the true philanthropist and public benefactor to a people heretofore worthy but greatly neglected.

In conformity with resolutions, Franklin B. Gowen, president of the Philadelphia and Reading Railroad Company, and president George DeB. Keim, of the Philadelphia and Reading Coal and Iron Company, the collieries of the company are placed directly under the superintendence of Gen. Henry Pleasants, E. and M. Engineer, for all necessary improvement and development, having in view extension, capacity, strength and durability, which enhances the value of the property, in lieu of the impoverished condition heretofore permitted by lessees and casual operators and landowners.

From all the present developments made by the company their prospects exceed their anticipations nearly upon all their coal estates. The great value of the Diamond drill in these undertakings is truly invaluable, as its operation decides, to a mathematical certainty, the situation, thickness and depth of each particular strata and seam of coal, besides their purity and character.

SECTION OF MAMMOTH VEIN COAL & IRON COMPANY'S
EAST & WEST SHAFTS

Scale 60 feet per inch



In connection with these borings compressed air engines are brought into requisition, and this improvement adds still more effect to the system of working deep shafts, than any system heretofore known.

The nine coal seams cut through in these shafts are of the best quality of coal, and are of an aggregate thickness of —— feet, and their aggregate product will equal at least ——— tons of coal per acre; all of which is available by tunnel approaches opening into those shafts. This event is hailed with demonstrations of delight by all classes of the community, and the further prosperity of Schuylkill county, as being the very first coal county on the American continent, is fully guaranteed.

There are other valuable well known coal seams underlying the great Mammoth seam in the other anthracite basins which still underlies it here, and it is hoped this company will prosecute their penetration further down, and continue still deeper explorations that may bring to light other new discoveries yet unknown to scientists, and we see no positive proofs adduced against this hypothesis of other underlying coal seams.

The community at large, as well as the company, are highly indebted to the firm determined confidence evinced by the chief officers of the company that have this grand undertaking in trust, of practically exploring and developing this deep basin; the vigor and determined spirit they evinced while prosecuting this gigantic work was, indeed, commendable. It was but ridiculous and vain to offer any other theory than the one adopted.

The upper six hundred feet of the stratas were somewhat confused in their angles of dip, but after which depth the regularity of the seams proved conclusively, that the great basin is regularly formed, gently sloping southward to the base of the Sharp mountain.

The disturbed condition of the first six hundred feet of these formations, contrasted with their uniform regularity still further down, is not dissimilar to the disturbed condition of the surface of the ocean, compared with its great depth.

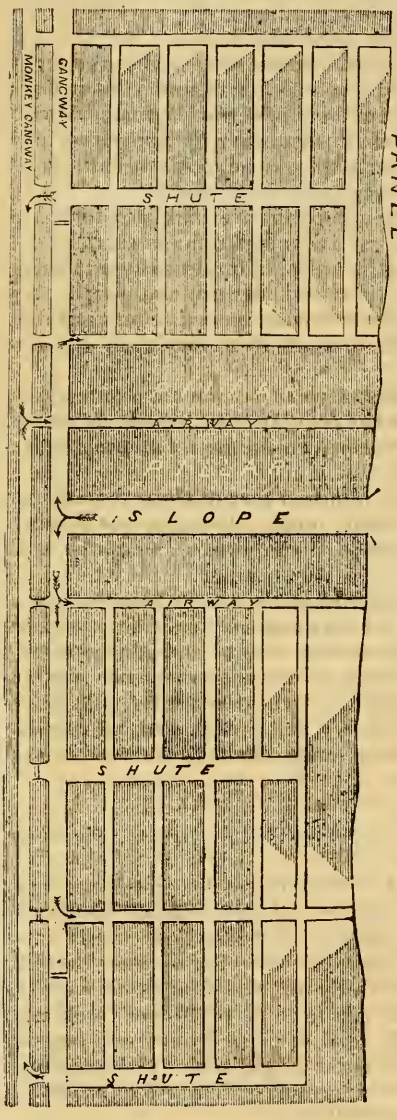
The subject of ventilation, etc., now engrosses the simple minds of some miners, and their discussions are simply of no consequence, for the officers which have shown such proofs of their practical ability and skill will not be found lacking in any essential necessary to properly ventilate and establish a safe system of operation; discipline of the first order will be established, the machinery will consist of every thing that will be durable and safe, and none but the most competent and reliable men will be employed in places of trust.

PLAN OF WORKING THE MAMMOTH VEIN.—*By Col. D. P. Brown, Pottsville.*

Numerous articles have been published in other countries on the economy of mining coal, and especially so in working of large seams. Estimates have been made by practical experts on mining in Schuylkill county, that fully one-third of its coal is lost by the manner in which it was formerly mined, particularly referring to the working of the Mammoth vein in Schuylkill region. This vein is found to run from 15 to 70 feet thick, and its dip commonly sufficiently acute for the coal to move by its own gravity down to its gangway, which runs on a right angle with its breastings. The panels being opened as shown by the diagram, which also exhibits the course of the air currents for its true ventilation

The slope being sunk and gangways opened at right angles, counter chutes are driven up at such convenient distances, opening into counter gangways forming square panels, through which counters are opened, on

which counter mining is commenced. The coal is here hauled to these counter chutes, and each tier of panels exhausted of its coal, while the ventilation is preserved intact during the operation of mining. Any falls of the superincumbent strata need not be removed, but is utilized to fill the goafs thus formed by extraction of the coal. Next, the second tier of panels are attacked in the same manner, and so on until the whole lift has become exhausted, leaving all the debris in the mine, thereby producing a cleaner article of coal. No coal need be lost, excepting very small stumps of pillar next the chute. To bring this coal out of these headings it would be advisable to lay a light road in them, and use a buggy wagon holding about 1,500 pounds of coal; this size of wagon could be easily handled by one man. To begin mining, the miner would first open out at the end of his heading in breast fashion up to the surface or the level above; and open wide enough so that when the coal was taken out, the next fall by skip off the solid, would bring down the top, thus forming a sort of natural slope or chute for the next fall of coal to slide down to where the laborer could load it in safety, into his buggy. The miners would always have a safe retreat into the heading when a fall of coal or rock was about to take place. The labor of mining coal from a loose end would be very light, while the labor of loading the coal into the buggy and tipping it into the chute would be fully compensated by the saving of expense in loading the coal from the main chute in the gangway, instead of the usual plan now adopted of loading by hand. The distance of ten yards between the parallel headings might vary according to circumstances, where the coal was strong and roof good, and the pitch enough for coal to slide on the bottom rock, twenty yards might be wrought to an advantage; this point would be settled by a skillful mining boss. This rough sketch will convey to a mining boss an idea of the plan.



The foregoing sketch conveys but an imperfect idea of the general plan. But as the writer is no draftsman, he will leave the drawing and printing of a more complete map to abler hands.

Referring again to the subject in hand, where the pitch of the vein exceeds 45°, it would be advisable to incline the chute to one side or other, so that the pitch of the chute would not at most exceed 45°; less, rather

than more, would be preferable, so that the chute might not choke up with coal, stopping the package, &c.

In my next I will refer to the working of the Mammoth on the run principle, and suggest a plan for adoption instead. The principle, however, would be nearly the same as the above. If the plan of mining as suggested above could be generally adopted, the loss of life by falls of coal would be very much reduced. At least sixty per cent. more coal could be mined from the same area, besides the rock and slate forming those immense dirt heaps to be seen everywhere.

The gangways are more secure, having good substantial pillars of unbroken coal left for their support. No interruption could occur from a squeeze or sit of the strata. All the coal could be extracted close to the gangway, and the ventilating channels carefully preserved, and the whole of the coal recovered before the lift would be abandoned or disused, and still the gangway could be preserved for drainage, as shown by the above cut.

The Great Anthracite Basin.

The largest known Anthracite deposit in the world is at present conceded to Pottsville, in the county of Schuylkill, Pennsylvania, lately developed by the persistent energy of the Philadelphia and Reading Coal and Iron Company, in the vicinage north of the noble little city of Pottsville, *(Anthracite City,)* these late developments have demonstrated beyond all opinions to the contrary notwithstanding, the existence of the largest anthracite deposit yet discovered in any other locality in Europe or America, the length of which exceeds twenty-five miles by four broad, varying in depth from the surface from 300 to 3,000 feet. The new shafts of this company were commenced their sinking in 1873, and were sunk to the depth of 1,127 feet, 1874, during which time there had been intervals resulting from strikes, and suspensions necessary for improvement in machinery and consultation, etc.; the existence of the large white ash seams in this basin was not a question of doubt amongst professional mining engineers, but their locality from the surface to be of practical development; the want of sufficient pecuniary means to defray the enormous expenses of such gigantic undertaking, the probability and possibilities were thoroughly discussed by many capable men; but the point of certainty for its true position had not been established nor yet decided, and this perplexing problem awaited other minds whose brow was to bear the laurels of its solution, in the persons of whom are, President Franklin B. Gowen, President George DeB. Keim, and General Henry Pleasants, Esq., C. and M. engineer and superintendent of mining.

The different estates comprising this large tract of territory became the property of the Philadelphia and Reading Coal and Iron Company by purchase, who forthwith took measures for developing the large deep white ash seams upon a gigantic but practical scale, and committing the whole charge to General Pleasant's superintendence, who thereupon entered energetically upon his arduous duties with a confidence not to be shaken by any sophism or false reasonings, but practical deductions derived from actual and accurate surveys and the result of such able experience has had the fruition of his ideal amply rewarded, in revealing the true positions of the different coal seams of red and white ash on a much more productive scale than had been anticipated by the friends of the theory of deep resources.

A register of the boring has been kept throughout of all rock and coal formations, specimens of which have been carefully kept in the office of the

company together with drawings of the seperate geological formations hitherto but imperfectly understood by the miner; this information, in itself is very important to the student of the mine, which enables him to distinctly locate without doubt the different coal seams and their approximate distances asunder; drawings of these shafts are herewith attached to this subject, which we hope will be a subject calcuted to afford a study of valuable interest as the great depth from which the lower cores are taken out is 19 feet under the surface and some feet below sea level.

It is proposed to establish this colliery upon a stupendous footing, which will, for durability and production, exceed any like colliery in Europe, as a series of collieries may be opened one above the other, by tunnels, cutting the angles of dip at convenient distances that not less than six could be in operation at the same time, many of which can be utilized for the purpose of ventilation and drainage.

Preparation of Coal.

The great waste of the hard anthracite coal is a matter which I think deserves serious attention at the hands of large producing corporations, and we are convinced an improvement could be effected which would more than repay the experiment, if this could be attained and a better system of mining adopted than has been heretofore practiced it would be a long stride on the highway to economy.

The present system is objectionable and should be condemned; the structure of the ponderous machinery used in its preparation, crushed and reduced for domestic use, as it has been from its original volume, reduces it to comparatively a small quantity, the several graded qualities prepared for the convenience of consumers that the great loss it incurs in its preparation is not at all at current rates remunerative to the producers, for the fluctuating state of the coal market and the unsettled demand for consumption requires a more careful consideration, and it is not an exaggeration to say that fully one-fourth of the whole product of the anthracite mines under the present system of mining and preparation is let go to waste and loss, not alone to the producer but to the whole country at large.

The washing of small coal where it can be advantageously done is another subject deserving consideration, and one which for its simplicity and convenience should be adopted at all the collieries; the coal thus saved will rapidly repay its expenses, and produce a purer marketable article than can be otherwise produced. The glaring unsightly waste heaps met with all over the regions are manifestly claiming the attention of thinking men, and although attempts are made, but upon a small scale, to manufacture a marketable article out of coal waste it meets with but slight encouragement at home or abroad. This arises from the fact that the purer article can be produced far cheaper than the artifical manufactured coal.

Another subject concerning the preparation of coal, and removing the impurities before it gets into the crushing machinery is a matter which requires some special attention, and one which entails a large expense at many if not all collieries in the district, and in every instance may be traced to a want of ample means and accommodation where the coal is delivered at the breaker buildings.

The complaint we make in this case is that the space for handling mine wagons and impurities are altogether too contracted, the contents of the mine wagons are deposited into a long contracted chute, where by its own pressure and momentum on this inclined plane crowds the mass of coal and rock in such an inextricable manner as to make the handling of the mass a laborious and expensive matter, and consequently a large share of the

impurities passes off to the rolls, where with the coal, it it crushed in the mass, and the manipulation of these particles of rock and slate is a matter of heavy expense to the producers.

We would suggest, that to facilitate the removal of the impurities from the coal before it enters the separating chute above described, the building ought to be so constructed that several tracks could be used, and the chute to be so constructed as would be capable of accommodating a large force of hands for collecting the impurities in advance, a squad of these men could tilt the wagons instanter, and return to their work without delay. In this manner the mass of coal could not accumulate to any disadvantage, and the impurities could be more readily handled and removed, and consequently the coal would be better cleaned at one-half the present expense, the wet matter could be set apart and washed and selected before it enters the rolls.

Mine Accidents.

We greatly regret the large number of casualities which resulted in death and injury during the year, in this respect Pottsville district exhibits a larger number than the average in any other district according to its number of collieries and production of coal, and a less number of casualities was reasonably expected, notwithstanding the vigilence of the district inspector in promoting security for the employees. The P. R. C. & I. Co. have also mine inspectors delegated with power to act in conformity with the requirements of the mining law of 1870, who endeavor to carry out its provisions in full and as far as it is deemed expedient; the record gives 35 deaths, 13 of which were occasioned by explosions of fire-damp, and 8 by fall of rock; the proportion of deaths is much larger for the amount of coal mined and the number of hands employed than is the case elsewhere, either in England, France, Belgium or Nova Scotia, as will be seen by the following statistics:

	Pottsville district.....	Ashland district.....	Shamokin district.....	England.	Nova Scotia.
Number of persons employed.....	4,662	7,531	11,062	370,881	3,522
Tons of coal produced.....	.....	.....	.....	117,439,251	88,950
Lives lost by accidents.....	.....	.....	.....	1,075	13
Persons employed to each life lost....	.....	.....	.....	345	271
Tons mined to each life lost.....	.....	.....	.....	109,246	67,765

To account for this melancholy exhibit rashly, would be out of place, but from all the true data connected with this subject it appears that it must arise from rashness and ignorance more than from any fault of the mine managers or directors of mining.

Carburetted hydrogen gas prevails in all collieries in the district. The majority of the collieries are old and reduced, which, if kept properly open, would require an expenditure much larger than their revenue would admit, and consequently be abandoned, and turn out of employment a large number of people, and the value of the property would become depreciated.

When examinations are instituted, inquiring into the causes of these accidents, we find the most plausible paliations resorted to by those most interested, generally speaking, attributing the casualty to be purely accidental.

Nevertheless, it will be observed, by comparison with other regions, that a more strict surveillance on the part of parties in charge, has elsewhere been attended with a sensible diminution of casualties, in the ratio of deaths to the production of coal, while the same course would be applicable to the case in point, and be attended with the same happy results.

A very salutary lesson can be gleaned from a strict organization of rules and good government of mines, and compulsory measures resorted to to compel their observance, and the objection to employing impracticable or irresponsible parties, whose conduct works casualties to themselves and endangers the lives of others.

Now, since president F. B. Gowen has decided to remit a pension to the widow and orphans of deceased miners, it is hoped he will establish a code of mine rules which will be properly enforced and respected, so as they will be salutary and effective, which will reflect honor upon his humane policy towards his miners.

Explosions of Fire-damp, (Carburetted Hydrogen Gas.)

This species of accidents may properly be attributable to the following cases, viz: First—Inadequate ventilation, inexperienced management of the same, impractical fire bosses, who elude their lawful duties, and culpable rashness on the part of head-strong miners, whichever one of these causes the accident, legally and morally participates in the destruction of life and injury to person and property.

Custom, as is the case in all things else, would seem to reach the miner deep down in the mine. And this custom often renders him obdurate, negligent and impervious to dangers both to himself and to his fellow-worker, the sure consequence of which results in death or great bodily injury. Inattention and ignorance go hand in hand to make up the bulk of these casualties, as miners now-a-days are expected to be much better qualified to discharge their duties properly than was the case some years ago.

But inadequate ventilation in any mines that generate fire-damp at present is in the least criminal, and not in the least a bar to any excuse for accidents.

The employment of an incompetent or otherwise unfit fire boss or mine boss, is morally inexcusable.

The indulgence shown to miners who are known to be rashly disposed and irregular in their habits is equally criminal, and should not be tolerated, and under no circumstances should strangers be placed in places of danger or employed without first being strictly examined by the manager of the colliery to ascertain his fitness to enter the mine, and a want of practical experience and lack of common education should be a bar to his qualification as well as intemperate habits, and the employer should satisfy himself on this point.

Explosions of Powder.

This class of accidents has no real extenuation. Sufferers by these accidents are inexcusable, and are all victims to their own folly; powder and its agencies are so well understood by all, that it is next to a suicidal act to handle it carelessly. That in charging holes, temping the powder, or redrilling missed holes and making of cartridges and carrying naked lights, is anything but safe, yet it is surprising to see with how little a degree of caution some persons undertake the handling of powder, and the consequent result of carelessness is death or great bodily injury. Still, no amount of counsel or example will overcome this rashness among some miners.

The virulence of the poisonous acid of powder can never be eradicated out of the flesh, and destroys its texture and condition, the temperature of the flame being 1,100° Fahrenheit, while that of boiling water is at 212° Fahrenheit.

Blasting in Mines.

Blasting rocks and coal is a common danger, and should never be entrusted to negligent, inexperienced men. Their are many disappointments attending this sort of employment, that their discovery generally came too late. Missed shots and missed cartridges should be cautiously handled, and to none but intelligent persons should such business be intrusted, although very often we meet the most reckless sort of persons charged with this kind of business, because the sensible man prefers some other employment. The force of the explosion is exceedingly great, as one pound of good powder, inserted in a small hole, will, under ordinary circumstances, remove four and one-half tons of solid rock. Safety should be first consulted before meddling with powder blasts and missed shots.

Coal Fall.

Coal and rock falls are not materially different, the same laws govern both alike ; but, falls of coal are more common and less perceptable in their character, as the force of gases have a powerful influence on coal, and often sunders, and penetrates large solid bodies of it, which, when it becomes detached, is thrown off or displaced so as to make it invisibly dangerous. Nor can the miner, with any degree of certainty judge of his safety, at least so far as this case applies to high dipping seams, and more particularly is this the case with working the Mammoth seam.

Large masses of coal have often been detached in an instant, subsequent to its being thoroughly examined by the practiced miner, that on this return, after a temporary absence, he found himself overwhelmed with the mass and enveloped in the flame of an explosion.

They are other dangers and perils met with, such as falls of loose coal and loose rock, geological fossil, and strange formations imbedded in the solid rock and coal seams which escape detection, the falls of such pit-tubs or rolls are sudden and dangerous, and their situation cannot be easily detected.

These dangers are greatly increased in high dipping seams when the miner, as well as the manager, desire to increase a temporary shipment The miners trim up the face of the breast, the sides are sheared close to the rib or pillar, the base he well undermines, the coal is well holed, and should "lypes" run through the seam in irregular cubes, or large blocks, the drag of the coal and escape of gas may, when the facing has thus been prepared, bring down the whole mass so sudden that escape is impossible. There are any other sources of danger which arise from decay of timber, eruptions from blasts, coal slides, concussion of explosions, which generally result fatally. The miner who disregards safety and works contrary to roles, for the mere purpose of increasing his pecuniary interest, often falls a victim to avarice. Yet there are many such, and for whose imprudenc there is no excuse.

Shaft Accidents.

Shaft and slope falls are another source of casualties which requires some consideration, in securing the safe transit of miners with safety and dispatch.

In sinking of shafts, a proper regard should be had to proper structure and tackle of cages, which should be placed in sliding frames grooved in

slides or guides, in order to avoid the windage of ropes or chains, the displacement of pulleys, the falling of material, blasting, timbering, inundations, the precipitancy of the men in ascent and descent out of or into the excavation. Many of these examples are found in our reports. It should be accepted and classed amongst the criminal offences, to employ any but men of sound judgment and practical knowledge of the business to undertake such arduous work.

The effects of inordinate use of tobacco or intoxicating drink, unfits men for such business; likewise persons subject to attacks of unnatural sickness or ungovernable passion, or who does not correctly understand the language used by his associates. Any confusion in an urgent peril, partakes of a sort insanity, and distracts the company, while a moment of cool reflection would dispel all fear and save the lives of all. Throughout our experience, we find the intention of doing right manifestly demonstrated, but there are those, who, through some misconception or forgetfulness, mismanage matters in a manner that is not at all intended; the result of such misguidance occasions great misfortunes and injury, so that if only one individual amongst the company becomes incapacitated, he may easily in his rashness jeopardize the whole.

Accidents by Machinery.

The vast number of engines in use at the collieries in the district while during working hours, all of which are in constant motion, and of necessity must be kept in working trim; persons in charge must be exposed to such dangers as arise from oiling, keying, belting, &c., and it is surprising to see how few cases of accident occurs amongst them; breaking of ropes and chains belong to this class of accidents, and it is gratifying to say many fatal accidents of this class do not occur. To one not conversant with the working of our mines, it would be surprising that many more accidents do not occur.

Accidents by Mine Wagons.

This class of accidents are a prolific source of injuries, but to consider the millions of tons of coal handled, with an equal bulk of waste, the character of the work done, the manner in which it is done and the fixed time to accomplish the work, it is not surprising to hear of accidents arising from this source; about ten per cent. of all the colliery accidents arise from this class; the haulage and handling of wagons is constant during working hours and cannot be dispensed with, except at collieries where mine locomotives are in use.

This new adjunct to haulage is hailed with delight, and promises soon to supersede all other systems heretofore in use, and those who have put this system into practice are fully satisfied with its results. These engines are capable of performing a large amount of service, and at the same time the service performed gives satisfaction, is cheap and economical, involving very little expense and does away with a vast amount of labor.

Steam Boiler Explosions.

In view of the increased production of coal annually, the mining force must correspondingly increase, the result of which is anticipated to a further increase in steam power, massive engines are daily coming into use which requires a large capacity for steam, and consequently the best material in the market is looked for, all antiquated patterns are superseded by the new improved ones, which are tested and mounted with the necessary

safety gauges and fixtures, which gives a large amount of confidence in their security and safety.

Since the steam boiler inspection act of 1871 went into operation, there were but ten steam boiler explosions in the district, resulting in the death of ten (10) persons where seventeen hundred and fifty-nine boilers were in use, or for every 1,055 boilers in use, one person lost a life.

The repairing of old boilers is not to be encouraged, yet we find new material as likely to yield as any old material, but on no account should the use of old boilers be encouraged, for their use after eight or ten years service is, I think, a false economy, and in the end generally ends in a serious injury.

In connection with this subject, I will respectfully bring to the attention of engineers in particular, and owners and superintendents in general, the many serious dangers steam boilers are subject to. I will not describe or consider all, but only the most serious of them, viz: the scale formation is known to all enginemen which is an incrustation; this hard substance is formed out of earthy salts contained in the water, which attaches itself to the whole inner surface of the metal. It soon destroys the fiber of the metal, and causes a great loss in fuel, expensive delays in cleaning, and, not unfrequently, explosions. These facts are well understood by those who use hard or mineral water for steam purposes, but a few simple facts bearing on this subject will not be out of place, viz:

"Scale, being a non-conductor of heat, its presence in a boiler of one-sixteenth of an inch is a loss of about fifteen per cent. of the heat in fuel." The metal never gets hotter than the water when it is in contact with it, whatever may be the outside temperature, and the water never becomes hotter than 330° under the pressure of 100 pounds. Clean boiler plates would last for years, when used with good water, but when covered with scale incrustation, and thus removed from contact with water, they soon become overheated as to deteriorate in quality and quantity. Explosions frequently takes place by the cracking of this crust under a high head of steam, by allowing the water to come in contact suddenly with the metal, over heated plates.

Many are the expedients resorted to for the removal of this incrustation, by alkalies, powders, etc., but are often as injurious as the scale itself, being chiefly composed of acetic acids, the effect of which on the plates and valves is very pernicious. The admitted plan is to remove from the water all foreign matter which form scale, before the water is used in the boilers, and at the same time avoid auxiliary boilers, and to entirely avoid or prevent the formation of scale by supplying pure feed water for the boilers.

The passage of the exhaust steam through the water will obviate the great objection to acidulated water for steam purposes, as it has the ability to destroy the acidulated matter suspended in the water and render it purer, as is the fact with sea water, which separates the saline substance by evaporation and renders the water pure, and fit for use. None can doubt the fact of purifying water by evaporation, and while the exhaust steam is within the reach of all, and the chief medium, it can be cheaply utilized, and there is no doubt of its good effect if properly applied. This has nothing to do with experiments, but it is a reality.

Boiler Explosions Explained.

A report on steam boiler legislation, made to the British Association for the Advancement of Science, at its meeting two years ago, by some of the oldest practical men of science in England, such as Sir William Fairbairn and Sir Joseph Witworth, states that for every explosion due to the boiler

minder, in neglecting the proper water supply and care, six explosions are due to the boilermaker or boiler owner, from making bad boilers and using bad boiler-plates, and bad mending and repairing work.

This committee expressed their conviction that explosions are not due to accidents; that they are not at all mysterious, but that they arise from the simplest causes, and may be prevented by the exercise of prudence, common care and common knowledge.

Boilers, as a general thing, burst from weakness. Competent inspection is fully adequate to detect the weakness in the boiler in time to prevent an explosion; then when that weakness arises from mal-construction or a defective condition, or gross negligence of the owner in permitting careless and incompetent persons to keep them.

Steam being the vapor of water, or the elastic aeriform fluid generated by heating water to a boiling point, when produced under the common atmospheric pressure, its elasticity is equivalent to the pressure of the atmosphere, and is called low steam; but when it is heated in a confined state, its elastic force is rapidly augmented, and is then called high steam. On the application of cold, steam instantaneously returns to the state of water, and thus a sudden vacuum is created. From this property, and from the facility with which an elastic force is generated by means of steam, this constitutes a mechanical agent, at once powerful, tractable and manageable to be found, as is seen in the vast multiplied uses of the steam engines.

Steam is an invisible agent, and is to be distinguished from the cloud or mist it forms in the atmosphere, that being water in a minute state of division, resulting from the act of condensation of steam.

Specific Gravity of Steam.

The specific gravity of steam compared with air is as the weight of equal volumes. Thus the weight of a cubic foot of steam, at the pressure of the atmosphere is 257.353 grains, and the like volume of air at 34°, is 527.04 grains; hence, 257.353÷527.04 5=4,883, which is the specific gravity of steam compared with air, and with water it is .00058825

To compute the pressure of steam, when the height of the column of mercury it will support is given:

Rule.—Divide the column of mercury into inches by 2.0376, and the quotient will give the pressure per square inch in pounds.

Example.—The height of a column of mercury is 2.0376 inches; what pressure per square inch will it contain?

2.0376÷2.0376=100 pounds.

To Compute the Temperature of Steam.

Rule.—Multiply the sixth root of its force in inches of mercury by 177, and subtract 100 from the product, the remainder will give the temperature in degrees.

Example.—When the elastic force of steam is equal to a pressure of 49 inches of mercury, what is its temperature?

Note.—To extract the sixth root of a number, is to ascertain the cube root of its square root.

Thus, the $\sqrt{}$ of 49=7, and $\sqrt[3]{}$ of 7=1.91291×177—100=238° 58′.

To compute the pressure of steam in inches of mercury when the temperature is given:

Rule.—Add 100 to the temperature, divide the sum by 177, and the sixth root of the quotient will give the pressure in inches of mercury.

EXAMPLE.—The temperature of steam is 132° ; what is its pressure ?
Thus—$100 \times 312 = 2.3277^{6} = 159$ inches. Answer.
177

By careful study the engineer may profit by the above examples, and enable him to understand his profession more clearly.

To compute the volume a cubic foot of motor occupies in steam.

RULE.—To 459 add the temperature in degrees, and multiply the sum by 76.5; and divide the product by the elastic force of steam in inches of mercury, and this quotient will give the required volume.

NOTE.—When the force in inches of mercury is not given, multiply the pressure in pounds per square inch by 2.0376 ;

Or $1 + 00202. \times$ (temp. 32) $18.329 =$ volume. P. represents the pressure per square inch, and T. the temperature.

EXAMPLE.—The temperature of a cubic foot of motor evaporated into steam is 376°, and the elastic force is 357 inches, what is its volume ?
$459 + 376 \times 76.5 = 63,877.5 = 178.93$ cubic feet
357.

To compute the velocity of steam as it flows into vacuum.

RULE.—To the temperature of the steam add the constant 459, and multiply the square root of the sum by 60.2 ; the quotient will give the velocity in feet per second.

ATMOSPHERIC PRESSURE OF AIR.

Table of pressure of air in pounds avoirdupois per square foot of areas of shafts of different depths and temperature.

DEGREES.	Depth, 120 feet.	Depth, 180 feet.	Depth, 240 feet.	Depth, 300 feet.	Depth 360 feet.	Depth, 420 feet.	Depth, 480 feet.	Depth, 540 feet.	Depth, 600 feet.	Depth, 660 feet.	Depth, 720 feet.	Depth, 780 feet.
32°.....	9.710	14.565	19.421	24.276	29.131	33.986	33.842	43.697	48.552	53.407	58.262	63.118
40°.....	9.555	14.332	19.109	23.887	28.864	33.442	38.219	42.996	47.774	52.551	57.328	62.106
50°.....	9.367	14.051	18.734	23.417	28.101	32.784	37.468	42.152	46.835	51.519	56.202	60.386
60°.....	9.187	13.780	18.373	22.960	27.560	32.153	36.746	41.339	45.933	50.526	55.119	59.712
70°.....	9.013	13.519	18.026	22.532	27.039	31.545	36.051	40.558	45.064	49.571	54.079	58.584
80°.....	8.846	13.268	17.691	22.114	26.537	30.960	35.383	39.806	44.228	48.656	53.074	57.496
90°.....	8.684	13.027	17.369	21.711	26.054	30.396	34.738	39.080	43.428	47.765	52.107	56.449
100°.....	8.529	12.794	17.058	21.323	25.587	29.852	34.117	38.381	42.646	46.911	51.175	55.440
110°.....	8.379	12.569	16.758	20.948	25.138	29.327	33.517	37.707	41.896	46.086	50.276	54.465
120°.....	8.235	12.352	16.469	20.586	24.704	28.821	32.938	37.055	41.173	45.290	49.407	53.525
130°.....	8.095	12.142	16.189	20.237	24.284	28.332	32.379	36.426	40.474	44.521	48.569	52.616
140°.....	7.959	11.939	15.919	19.899	23.879	27.859	31.838	35.818	39.798	43.778	47.758	51.738
150°.....	7.829	11.743	15.658	19.572	23.487	27.401	31.316	35.230	39.145	43.059	46.973	50.888
160°.....	7.702	11.554	15.405	19.257	23.107	26.958	30.810	34.661	38.512	42.363	46.215	50.066
170°.....	7.580	11.370	15.160	18.950	22.740	26.530	30 320	34.110	37.900	41.690	45.480	49.270
180°.....	7.461	11.192	14.923	18.653	22.384	26.115	29.845	33.576	37.307	41.037	44.768	48.490
190°.....	7.346	11.020	14.693	18.366	22.039	25.712	29.386	33.059	36.732	40.405	44.078	47.572
200°.....	7.235	10.862	14.470	18.087	21.705	25.322	28.940	32.557	36.175	39.792	43.410	47.027
210°.....	7.127	10.690	14.253	17.817	21.380	24.944	28.505	32.070	35.634	39.197	42.761	46.324
212°.....	7.106	10.658	14.211	17.764	21.317	24.869	28.422	31.976	35.527	39.080	42.633	46.180

At 32° Fahrenheit the atmosphere weighs $14\frac{3}{4}$ pounds per square inch surface, the Barometer at 30 inches.

EFFECT OF EXPANSION WITH EQUAL VOLUME OF STEAM.

The theoretical economy of using steam expansively is as follows, a like volume of steam being expanded in each case, and expanded to supply the increased spaces:

Point of cutting off.....	Expansion number.....	Mean pressure of steam.....	Gain per cent. in power.....	Point of cutting off.....	Expansion number.....	Mean pressure of steam.....	Gain per cent. in power.....
.1	10	3.302	230.	.5	2.	1.693	69.3
.125	8	3.079	208.	.6	1.66	1.507	50.7
.166	6	2.791	179.	.625	1.6	1.45	47.
.2	5	2.609	161.	.666	1.5	1.405	40.5
.25	4	2.386	139.	.7	1.42	1.351	35.1
.3	3.33	2.203	120.	.75	1.33	1.285	22.3
.333	3	2.099	110.	.875	1.25	1.223	20.5
.376	2.66	1.978	97.8	.875	1.143	1.131	13.1
.4	2.5	1.916	91 6	.9	1.11	1.104	10.4

In this illustration no deductions are made for a reduction in the temperature of the steam while expanding or of loss of back pressure. The same relative advantage in expansion as above given, whatever may be the initial pressure of steam.

The succeeding rule relative to the effect of steam expansion is obtained from the following table:

Point of cutting off.	Gain in fuel.	Initial pressure required.		Point of cutting off.	Gain in fuel.	Initial pressure required.	
Stroke.....	Per cent.....	Cutting off, pounds	Full stroke, pounds	Stroke.....	Per cent.....	Cutting off, pounds	Full stroke, pounds ....
[illegible]	11.7	1.01	1	[illegible]	49.6	1.32	1
[illegible]	22.4	1.03	1	[illegible]	58.2	1.67	1
[illegible]	32.	1.09	1	[illegible]	66.6	1.6	1
[illegible]	41.	1.18	1	.....	.....	.....	.....

THE STEAM ENGINE.

To detail the steam engine of whatever form, we shall only touch upon what is useful in its combination and parts. The diversity of their construction is illimitable, and to attempt a description in connection with this subject is unnecessary.

The first grand essential is the cylinder, and may take of any form, but in common use, an elongated cylinder or tube, to which is attached sundry rods, pipes, nozzles, valves, &c., all of which partake of different forms to answer their respective purposes, giving motion to different powers, as eccentrics, levers, hand-gear, &c.

The eccentric being nothing more than a circular pulley, having an unequal centre on its shaft, the counter rods connect the shaft-gear and slide valves, which may be said to be the first power of the engine department; in similarity with the pendulum of a clock, the slide gear describing a move-

ment by force, while the pendulum receives its power by pressure. Each will continue its motion as long as its momentum power is sustained; the one depending upon steam power, while the other receives its motion from weight. To render the eccentrics as effective as possible, the steam ports are constructed of measured proportions, and made as long as the cylinder's diameter will admit; so that by a slight motion of the valve a large orifice may be gained. In condensing engines it is common to allow the area of each steam port to equal one-thirtieth, and in high pressure engines one-sixteenth of the square of the cylinder's diameter.

Therefore to enable the eccentric to approximate hand-gear, the slide valves are placed at select distances in advance of the piston head, and these distances are termed leads, so that at each return stroke the steam in the cylinder may approach to an equal density with that in the steam boiler. Where high velocities are necessary, the lead of the valves are of great advantage in cutting off the steam before the piston completes its full length of stroke, but where power is the object, it requires the steam to be continued to the end of the stroke.

Here are illustrations of the two extremes of the mechanical power of steam; the one point is that of running at full speed and carrying no weight, the other is that of being loaded until the engine cannot move. The duty then of the practical mind is to study the useful effect.

The following results are given by engineers of passenger steam packets and locomotive engines:

When the load of the valve is 0 inches, the velocity is=1.

Do.....do.....do.... $\frac{1}{8}$ .....do.....=1.016.
Do.....do.....do... $\frac{1}{4}$ .....do.....=1.032.
Do.....do.....do.... $\frac{3}{8}$ .....do.....=1.048.
Do.....do.....do.... $\frac{1}{2}$ .....do.....=1.075.
Do.....do.....do.... $\frac{5}{8}$ .....do.....=1.103.

Steam.

In an elastic gaseous body formed of water combined with caloric, transparent and colorless in its pure state, but when in contact with the atmosphere it becomes a dense white mass, and ultimately returns to its original condition of water.

At 212° Fahrenheit it is equal to 14.7 lbs. avoirdupois per square inch, or the pressure of the atmosphere; one cubic inch of water will produce one cubic foot of steam at 212° Fahrenheit, and by still increasing its temperature, steam may be raised to several times the weight of the atmosphere, provided due caution be taken to strengthen the boiler for the necessary pressure required.

Steam boilers should be constructed of the best material known to manufacturers, as steam highly rarified in the steam boiler is of more utility than steam of a moderate soft elasticity, as the subjoined table will exhibit.

Philadelphia and Reading coal and iron company's lands in the mining district of Schuylkill, showing the number of acres in the following estates:

In Northumberland County.

	Acres.	Per.
Treverton	1,935	76
Zimmerman & Heilner	313	108
Associated Lands	2,238	69
Shamokin and Beaver Valley	1,990	150
Division Tract	389	

	Acres.	Per.
Wm. M. Rockafellow	104	64
Big Mountain Improvement Company	4,905	129
John Brady	228	11
Wetheral, Gray & Cleaver	645	31
M'Intyre Lands	1,809	42
Helfenstine Estate	2,027	109
Sheed Tract	186	58
Samuel Morgan	33	71
Locust Mountain Summit Improvement Company	712	52
Mount Carmel Coal and Improvement Company	2,696	80
Mount Carmel and Locust Mountain	513	120
In Northumberland County	20,730	50

SCHUYLKILL COUNTY LANDS

	Acres.	Per.
John P. Brock & Bro., Ashland	2,500	
Fountain Spring	60	
South Ashland	250	
Wm. Jones	489	141
Philadelphia and Mahanoy	2,728	51
Kear & Patterson	1,360	97
Taggert	97	80
Neifert	14	88
Sheafer		82
James M'Neill	556	93
Tamaqua	4,114	
Coal Hill	691	94
Wood & Abbott	518	64
Glenworth	305	140
Eagle Hill	320	65
Ravenside	141	42
Delcamp	75	154
Mary Patterson	50	
Lewis' Tracts	136	132
Lee Lands	1,434	19
Saw Mill Tract	49	120
Keein & Repp	190	31
Repp Heirs	53	141
Ellmaker	138	120
Oak Hill	358	66
19-64th Flowery Field	59	60
St. Clair Tract	395	
West Flowery Field	102	101
Mount Laffee	672	97
Gettle & Wagner	994	32
James Lang	390	
Minersville Estate	506	59
Diamond	97	14
Hammer & Hoy	60	
Salem Coal Company	1,356	
Manhatten Lands	19,000	
Catherine Groh	424	84
Phoenix Park	1,021	105

	Acres.	Per.
Wm. Clauser	76	134
Lewis Tract	458	76
Jacob F. Faust	90	43
Branch Dale	676	71
Little Klauser	82	143
Llewellyn Tract	182	144
Hughes & Langdon	177	153
Hartman & Meyer	474	84
Little Schall	31	14
Big Schall	252	146
Reed	161	53
Jacob Gunkle	536	120
Three-Eighths Ebenezer Branham	188	158
Swatara Lands	4,255	
Joseph S. Silver	52	138
Forbes & Delano	1,244	101
P. Kuntzleman	59	49
Leonard Illig	236	80
Alexander Klinger	146	13
Francis Spaltzer	63	140
John Meyer	426	
Henry Houtz	126	
Part of Robert Kinnear	76	
Monson & Williams	11,059	37
Fishing Creek Estate	6,939	45
Nineteen-Twentieths Nichols Track, Minersville	22	
	67,814	155
Controlling interest in the following tracts:		
Delaware Coal Company	1,268	
Tremont Coal Company	4,500	
Preston Coal Company	2,346	
Mammoth Vein Coal and Iron Company	1,031	
Total number of acres in Schuylkill County	78,959	155
Columbia county lands	1,753	
Nothumberland county	20,730	59
Northumberland county, Locust Gap Improvement Company, 1,023; and Fulton Company, 1,772; total	2,795	
Total number of acres purchased	104,238	54

A statement of the different collieries in the mining district of Schuylkill, comprising the counties of Schuylkill, Northumberland, Columbia and Dauphin respectively, giving the names of the collieries, their location, and the sort of coal seams worked in each —*B. Bannan's Coal Statistical Register.*

SOUTH OF BROAD MOUNTAIN.

NAME OF COLLIERIES.	Location of Collieries.	Name of the Coal Seams Worked and Designated by Letter, Thickness of Coal in Feet.	Feet.
Norwegian	Mount Laffee	Primrose, G	6
Yorkville	South Pottsville	Mammoth, E	12
White Oak	West New Castle,	Mammoth, E	30
Otto	Branch Dale	Mammoth, E, and others	
Eureka	Donaldson	Mammoth, E	
Monitor	Wadesville	Primrose, G	6
Commercial	New Philadelphia,	Primrose, S. and N., dip, G; Mammoth, E	24
Tremont Drift	Tremont	Primrose, G	6
Manchester.	Wadesville	Primrose, G; Orchard, H	10
Ellsworth	West New Castle,	Mammoth, E	50
Franklin	Upper Ranch C'k	Mammoth, in two splits, E, 7 foot	30
Forestville	Forestville	Mammoth, in two splits, E, 7 foot	30
Hickory Shaft	Wadesville	Mammoth, in two splits, E, 7 foot	26
Ledger Vein	Silver Creek	Mammoth, E, and 7 foot	6
Jackson	New Castle		
Eagle	St. Clair	Mammoth, E, 7 foot; Skidmore, D	32
Kear Slope	Mine Hill Gap	Mammoth, E, 7 foot	
Rainbow Shaft	St. Clair	Mammoth, E, 7 foot	
Oakdale Shaft	Glen Carbon	Mammoth, G, in splits	
Richardson	Glen Carbon	Mammoth, G, in splits	
Spruce Forest	East New Castle	Mammoth, G, in splits, 7 foot; Skidmore, D	
Black Heath	Lower Ranch C'k,	Mammoth, G, in splits, 7 foot	
Lorberry Tunnel	Lorberry	Buck Mountain B, or Lykens Valley seam	
Lincoln	Lorberry	Buck Mountain B, or Lykens Valley seam	
Palmer	Phœnix Park	Diamond, J	5
Eckert	Donaldson	Mammoth, in two splits	16
Middle Creek	East of Donaldson	Mammoth, E	
Colket	West of Donaldson	Mammoth, in splits, E, and Primrose, G	
West End	West of Donaldson	Buck Mountain B, or Lykens Valley,	
Eagle Hill Shaft	Eagle Hill	Mammoth, S. and N., dip, E, 7 foot	
White Oak, No. 2	Coal Castle	Overlap of E	
Kalmia	Williams Val., So.	Lykens Valley, B	
Pine Knot, 1 and 2,	Coal Castle	7 foot E, Primrose, G; Holmes, F	
Live Oak	Coal Castle	7 foot and E	
Diamond, No. 2	Glentworth	Primrose, G; Holmes, F	
Peach Orchard	Tuscarora	Peach Mountain, M	
Yorkville Farm	Pottsville, West	Black Mountain	
Taylorville	Taylorville	Mammoth, in two splits E	
Glendower	Glen Carbon	Mammoth, in two splits, E, Primrose, G	
Thomaston Shaft	Thomaston	Mammoth G, in splits	
Brookside	Brookside	B, or Lykens Valley	
Beechwood	Mount Laffee	Mammoth, G, 7 foot; Primrose, G	
Kentucky	Tuscarora	Mammoth, G, 7 foot	
Pine Forest Shaft	St. Clair	Mammoth, G, 7 foot; Skidmore, D	
Pyne, No. 1 and 2	Swatara	Mammoth G, 7 foot; Skidmore, D	
Tower	Tower City	B, or Lykens Valley	
Alaska	Tamaqua	Mammoth, E, 7 foot	
Diamond, No. 1	Forestville	Diamond, J	
Phœnix, 1, 2, 3	Phœnix Park	Primrose, G	
Starr	Ravensdale	Peach Mountan, M	

South of Broad Mountain—*Continued*

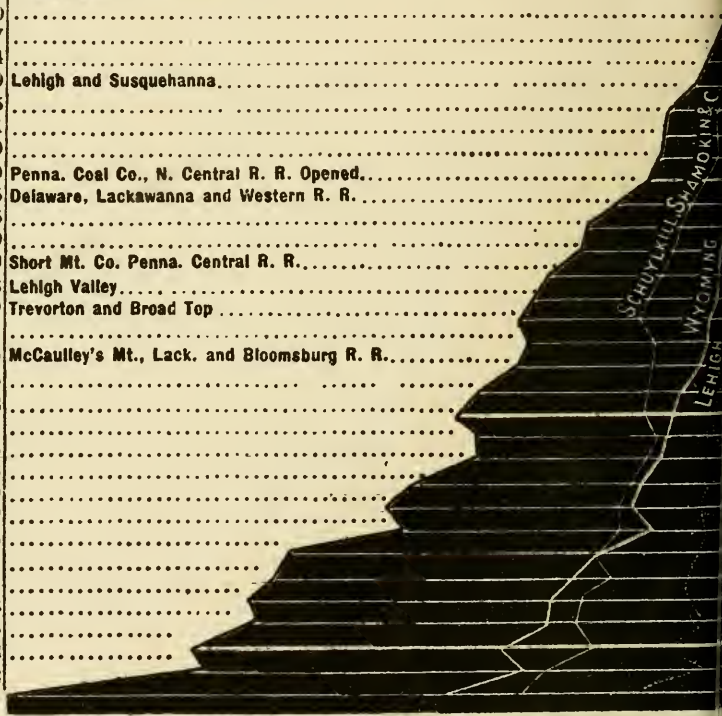
Name of Collieries.	Location of Collieries.	Name of the Coal Seams Worked and Designated by Letter, Thickness of Coal in Feet.	Feet.
Sharp Mountain...	Pottsville, South .	Mammoth, E	.....
York	Pottsville, West..	Gate.....	.....
Reevesdale.....	Reevesdale	A. B	.....
Buckville.....	Buckville.....	.....	.....
New Kirk	New Kirk	.....	.....
Wabash	New Kirk	.....	.....
High Mines.....	Tamaqua	.....	.....
Greenwood, 1 and 2	Tamaqua, East ...	.....	.....
Delaware, East....	Delaware Mines..	Diamond, J.....	.....
Bull Run.....	Bull Run.....	E, 7 foot.....	.....
Coaldale Slopes....	Coaldale.....	E, 7 foot.....	.....
61 collieries.			

Collieries North of Broad Mountain, in Schuylkill County.

Name of Collieries.	Location of Collieries.	Name of the Coal Seams Worked and Designated by Letter, Thickness of Coal in Feet.	Feet.
Furnace	Gilberton.....	Mammoth, E.....	.....
Girardsville, 2.....	Girardsville	Mammoth, E; Skidmore, D.....	.....
Beaver Run	Mahanoy	Skidmore, D, and Gamma, C.....	.....
Bear Ridge.....	New Planes.....	Skidmore, D; Mammoth, E; Primrose, G.....	.....
Union, No. 1.....	Big Mine Run	Skidmore, D; Mammoth, E.....	.....
Taylor & Co	Big Mine Run	Skidmore, D; Mammoth, E.....	.....
Glendon.....	Mahanoy	Skidmore, D; Gamma, C.....	.....
Mahanoy City.....	Mahanoy	7 foot Skidmore, D; Skidmore, D; Gamma, C	.....
Sunnyside.....	Mahanoy	B, Buck Mountain.....	.....
Excelsior.....	Ashland.....	7 foot and E.....	.....
Hoffman.....	Mahanoy	B, Buck Mountain.....	.....
Tunnel Ridge	Mahanoy	E, in splits; B, and Gamma, C	.....
Grant.....	Mahanoy	E, in splits; B, and Gamma, C	.....
Boston Run.....	Gilberton.....	E and D seams.....	.....
Sillyman	Mahanoy	Gamma, C and B seams.....	.....
Gilberton.....	Gilberton.....	E seam.....	.....
Girard Mammoth..	Raven Run.....	E, D and B seams.....	.....
Girard.....	Girardsville	E, 7 foot and D seams.....	.....
Oak Hollow.....	Mahanoy	E, 7 foot and B seams.....	.....
Wm. Penn Shaft ..	Shenandoah, S....	E and 7 foot.....	.....
Cuyler.....	Raven Run.....	E and 7 foot.....	.....
Draper.....	Gilberton.....	E and 7 foot.....	.....
Mahanoy	Mahanoy	E and 7 foot.....	.....
Honey Brook, 4....	Honey Brook.....	E and 7 foot.....	.....
Holmes.....	Mahanoy	Holmes	.....
Koh-i-noor.....	Shenandoah, W ..	E, 7 foot and Primrose G.....	.....
Turkey Run.....	Shenandoah, W ..	E, 7 foot.....	.....
Indian Ridge.....	Shenandoah	L, 7 foot; Primrose, G	.....
Keystone.....	Locustdale	E.....	.....
Knickerbocker	Mapledale	E, D and G seams.....	.....
Copley.....	Mahanoy	E, Mammoth and Primrose, G.....	.....
Elmwood.....	Mahanoy	E, Mammoth.....	.....
Lawrence.....	New Planes.....	E, Mammoth.....	.....
Plank Ridge.....	Shenandoah	Primrose, G and Mammoth, E.....	.....
M'Neill, 4	Yeatsville	Primrose, G and Mammoth, E.....	.....
West Lehigh	Coal Run.....	E, G, Orchard, H and Diamond, J	.....
Ellengowen	Mapledale.....	E, G, Skidmore, D and Gamma, C....	.....
Stanton.....	New Planes	Mammoth, E	.....
Preston, 4.....	Girardsville	Mammoth, 7 foot and Skidmore, D ...	.....
West Shenandoah,	Shenandoah	Mammoth.....	.....

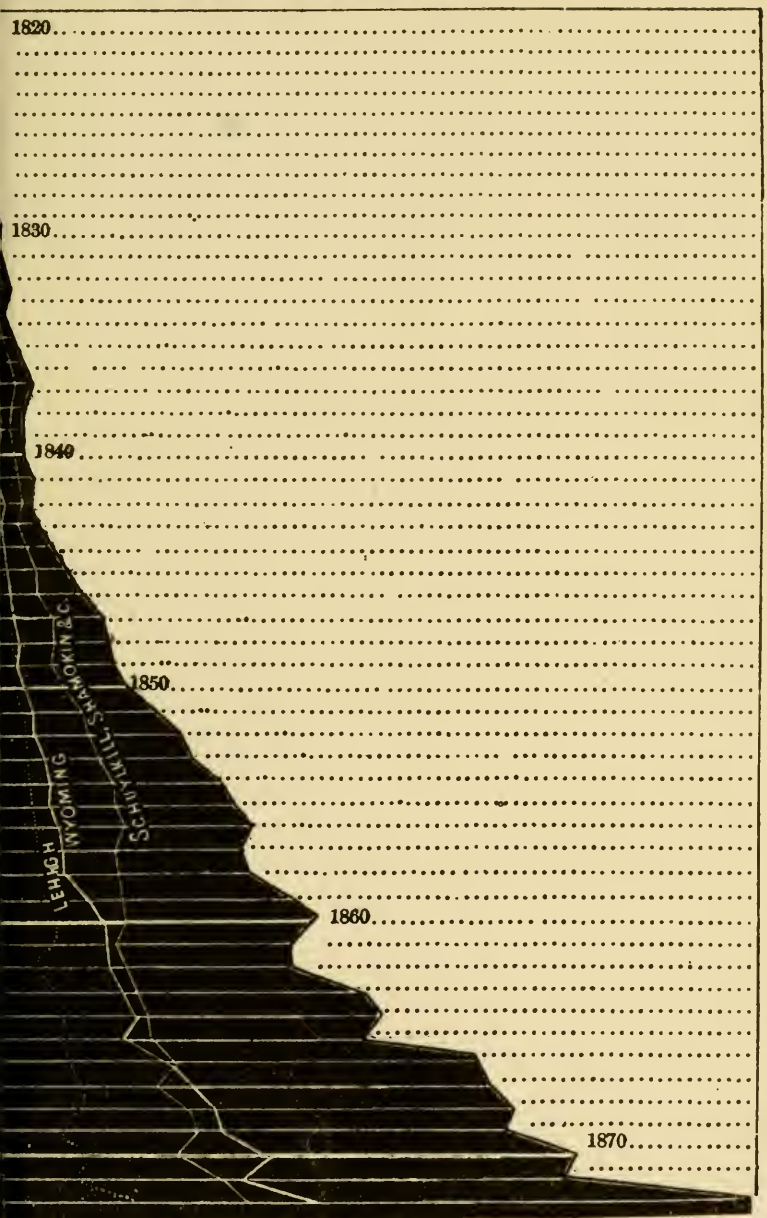
PROGRESS OF THE ANTHRACI

Year.	Lehigh. Tons.	Schuylkill. Tons.	
1820	365	.....	Lehigh Canal Opened
1821	1,073	.....	
1822	2,240	1,480	Schuylkill Canal Opened
1823	5,823	1,128	
1824	9,541	1,567	
1825	28,393	6,500	
1826	31,280	16,767	
1827	82,074	31,360	
1828	30,232	47,284	
1829	25,110	79,973	Delaware and Hudson Opened.
1830	41,750	89,984	
1831	40,966	81,854	
1832	70,000	209,271	Little Schuylkill R. R.
1833	123,001	252,971	Union Canal
1834	106,244	226,692	Wyoming and State Canals, Lykens Valley R. R.
1835	131,250	339,508	
1836	148,211	432,045	
1837	223,902	530,152	Beaver Meadow Mines, Pine Grove
1838	213,615	446,875	Hazleton
1839	221,025	475,077	Shamokin
1840	225,313	490,596	Buck Mt.
1841	143,037	624,466	Philadelphia and Reading R. R.
1842	272,540	583,273	Cumberland
1843	267,793	710,200	
1844	377,002	887,937	
1845	429,453	1,131,724	
1846	517,116	1,308,500	Lehigh and Susquehanna
1847	633,507	1,665,735	
1848	670,321	1,733,721	
1849	781,656	1,728,500	
1850	690,456	1,840,620	Penna. Coal Co., N. Central R. R. Opened.
1851	964,224	2,328,525	Delaware, Lackawanna and Western R. R.
1852	1,072,136	2,636,835	
1853	1,054,309	2,665,110	
1854	1,207,186	3,191,670	Short Mt. Co. Penna. Central R. R.
1855	1,284,113	3,552,943	Lehigh Valley
1856	1,351,970	3,602,999	Trevorton and Broad Top
1857	1,318,541	3,373,797	
1858	1,380,030	3,273,245	McCaulley's Mt., Lack. and Bloomsburg R. R.
1859	1,628,311	3,448,708	
1860	1,821,674	3,749,632	
1861	1,738,377	3,160,747	
1862	1,351,054	3,372,583	
1863	1,894,713	3,911,683	
1864	2,054,669	4,161,970	
1865	2,040,913	4,356,959	
1866	2,179,364	5,787,902	
1867	2,502,054	5,161,671	
1868	2,507,582	5,335,731	
1869	1,929,523	5,725,138	
1870	3 172,916	4,851,855	
1871	2,116,683	6,314,422	
1872	3,743,278	6,469,942	



By P. W. SHEAFER, Eng

COAL TRADE OF PENNSYLVANIA.



	Wyoming. Tons.	Total Tons.
1820	.....	365
	.....	1,073
	.....	3,720
	.....	6,951
	.....	11,108
	.....	34,893
	.....	48,047
	.....	63,434
	.....	77,516
	7,000	112,083
1830	48,000	174,734
	54,000	176,820
	84,000	363,271
	111,777	487,749
	43,700	376,636
	90,000	560,758
	103,861	684,117
	115,387	869,441
	78,207	738,697
	122,300	818,402
1840	148,470	864,379
	192,270	959,773
	252,599	1,108,412
	285,605	1,263,598
	365,911	1,630,850
	451,836	2,013,013
	518,389	2,344,005
	583,067	2,882,309
	685,196	3,089,238
	732,910	3,242,966
1850	827,823	3,358,899
	1,156,167	4,448,916
	1,284,500	4,993,471
	1,475,732	5,195,151
	1,603,478	6,002,334
	1,771,511	6,608,567
	1,972,581	6,927,580
	1,952,603	6,644,941
	2,186,094	6,839,369
	2,731,236	7,808,255
1860	2,941,817	8,513,123
	3,055,140	7,954,264
	3,145,770	7,869,407
	3,759,610	9,566,006
	3,966,836	10,177,475
	2,254,519	9,652,391
	4,736,616	12,703,882
	5,325,000	12,988,725
	5,990,813	13,834,132
	6,068,369	13,723,030
1870	7,825,128	15,849,899
	6,682,302	15,113,407
	8,812,905	19,026,125

nd Geologist, Pottsville, Pa.

COLLIERIES NORTH OF BROAD MOUNTAIN, IN SCHUYLKILL COUNTY—*Continued.*

NAME OF COLLIERIES.	Location of Collieries.	Name of the Coal Seams Worked and Designated by Letter, Thickness of Coal in Feet.	Feet.
New Boston	Buck Mountain	Buck Mountain, B	
Colorado	Colorado	7 foot, Mammoth, E and Skidmore, D,	
Shenandoah, No. 2,	Lost Creek	Mammoth, E	
Lehigh, No. 3	Lost Creek	Mammoth, 7 foot and Skidmore, D	
Hillside	Mahanoy City	Primrose, G and 7 foot seams	
Primrose	Mahanoy City	Primrose	
Tunnel	Ashland	Mammoth, E and Holmes, F	
North Mahanoy	Mahanoy City	Skidmore, D; Gamma, C; Buck Mountain, B	
Shenandoah City	Shenandoah	Skidmore, D; Mammoth, E and Primrose, G	
St. Nicholas	St. Nicholas	Mammoth, E and Primrose, G	
Suffolk	St. Nicholas	Mammoth, E and other seams	
Big Mine Run	Big Mine Run	Skidmore, D; Mammoth, E	
Thomas	Shenandoah	Skidmore, D; 7 foot and Mammoth, E,	
Bear Run	St. Nicholas	Skidmore, D; 7 foot and Mammoth, E,	
Cambrian	Ashland	Mammoth, E	
Girard Tunnel	New Planes	Mammoth, E and Skidmore, D	
Hartford	Mahanoy City	Mammoth, E and Skidmore, D	
Hoffman	Mahanoy City	Mammoth, E and 7 foot seams	
Trenton	Delano City	Skidmore, D	

ANTHRACITE COAL MINED.

The supply of all anthracite coal sent to the market and consumed in the mining counties for the years 1872, 1873 and 1874, as furnished by Benjamin Bannan, Esq., Pottsville, Pa.:

1872.	Marketed.	Local consumption.	Total tons.
Schuylkill county	4,135,908	875,000	5,010,908
Nortumberland county	1,221,327	170,000	1,391,327
Columbia county	319,220	25,000	344,220
Dauphin county	450,328	30,000	480,328
Luzerne county	9,194,808	1,500,000	10,694,808
Carbon county	3,610,674	500,000	4,110,674
	18,932,265	3,100,000	22,032,265
1873.			
Schuylkill county	4,252,043	880,000	5,132,043
Northumberland county	1,234,070	170,000	1,404,070
Columbia county	358,741	25,000	383,741
Dauphin county	449,915	30,000	479,915
Luzerne county	10,047,241	1,675,000	11,722,241
Carbon county	3,243,168	463,000	3,706,168
	19,585,178	3,243,000	22,828,178
1874.			
Schuylkill county			
Northumberland county			
Columbia county			
Dauphin county			
Luzerne county			
Carbon county			

SCHUYLKILL, LUZERNE AND CARBON.

Coal tonnage for twelve years, ending December 31, 1874.—Miners' Journal.

YEARS.	Schuylkill.	Luzerne.	Carbon.
1863	3,443,265	3,759,610	1,984,713
1864	3,642,218	3,960,836	2,064,699
1865	3,735,802	3,256,535	1,822,535
1866	4,633,487	3,736,616	2,128,867
1867	4,334,820	5,328,322	2,062,446
1868	4,414,356	5,990,813	2,507,582
1869	4,748,960	6,068,365	1,929,083
1870	3,720,103	7,559,902	1,040,303
1871	5,124,780	6,481,171	2,249,356
1872	5,107,450	9,191,171	3,610,674
1873	5,209,156	10,047,291	3,243,168
1874	.....	.....	.....
	48,114,399	65,386,632	24,643,426

The above shows the current of the coal trade for the last twelve years in the above three counties. It will be observed that the Luzerne and Carbon counties are annually increasing their coal tonnage, whilst Schuylkill is only keeping its own in the last —— years; the aggregate tonnage of the three counties foot up in twelve years to ——— tons.

To influence the increase tonnage of Schuylkill, president Gowen, of the Philadelphia and Reading railroad offers to loan the bonds of that company for one-half the aggregate cost of iron works and manufacturing establishment that may be located in the Schuylkill region, or along the Schuylkill river or the lines of the company's roads. The unsettled state of the finances and tariffs of the country, chiefly deterred the advantages of this proposition of Mr. Gowen; but should a solid financial basis be established, and a tariff equitably adjusted which capitalists could feel secured in, no doubt but in twenty years hence, the whole line of the Schuylkill would be filled up with all descriptions of manufacturing establishments. Nor can any other location in the State offer better advantages for investments in manufacturing, production and consumption, and an abundant supply of material in its raw state, that at present under the unsettled state of the country lies useless to all intents and designs.

COAL PRODUCT OF THE UNITED STATES IN TEN YEARS.

YEARS.	PENNSYLVANIA.		U. STATES.	Aggregate product of U. States.
	Anthracite.	Bituminous.	Bituminous.	
1865	9,435,152	2,684,440	7,500,000	19,619,592
1866	13,329,692	3,126,226	9,000,000	25,455,918
1867	12,552,432	3,309,408	10,000,000	25,861,840
1868	13,834,132	3,544,982	11,500,000	28,879,114
1869	13,651,747	4,387,105	11,722,158	29,761,010
1870	15,274,029	4,340,279	13,500,000	33,114,308
1871	15,199,103	4,895,914	14,500,000	34,595,017
1872	18,929,263	5,231,998	16,500,000	40,661,261
1873	19,585,178	5,515,784	17,000,000	42,100,962
1874	.....	.....	.....	.....
	131,790,728	37,036,136	111,222,158	280,049,022

The foregoing tonnage is the amount of marketed coal of all sorts, to which we add the estimated home consumption in the mining regions during the same time of ——— tons, making a grand total of ——— tons.

ELEVATIONS OF POINTS ABOVE MID-TIDE AT PHILADELPHIA, ON LINE OF MINE HILL RAILROAD, SCHUYLKILL COUNTY, PA.

	Feet above mid-tide
Schuylkill Haven Junction, (Nav. crossing,)	520
West Wood Junction	663
West Wood and Muddy Branch Junction, Weaver colliery,	697.75
D. Hock & Co's colliery, head of West Branch	873.11
Otto colliery, Branch Dale	853.11
Swatara and Middle Creek railroad Junction	817.11
Swatara Falls Colliery; Claud, White & Co	1,019.14
Middle Creek shaft, P. R. C. & I. Co	1,015.14
Tremont and Mt. Eagle Railroad Junction, Fisher's mine	758.15
East Franklin colliery, Upper Rauch Creek	1,139.19
Kear's colliery, Wolf Creek, Minersville	788.9
Kear's colliery, Mine Hill Gap, Northside	841.10
East Pine Knot colliery at Laurel Run siding	881.10
Thomaston Shaft colliery, Thomaston	967.115
Richardson colliery siding, Glen Carbon	1,033.13
Glendower colliery siding, Glen Carbon	1,200.135
Head of Mine Hill Planes, Broad Mountain	1,519.185
Foot of Mine Hill Planes, Northside	802.205

NOTE.—The Kear, Wolf Creek slope, is 1,520 feet deep on an angle of 33°, south dip=38.2 feet below sea level.

ELEVATIONS IN THE ASHLAND BASIN AND VICINITY.

	Feet above mid-tide.
Bancroft's colliery, drift level	853.225
Bast colliery, foot of Big Mine Run planes	988.245
Eagle colliery, Columbia co., Big Mine Run, head of planes,	1,279.25
Judge Ryan's colliery, head of Big Mine Run planes	1,285.25
Robert Gorrell colliery, Hazledell, Columbia county	1,355.225
Centralia colliery, Centralia, Columbia county	1,425.26
Keystone colliery, Locustdale, Schuylkill county	1,025.25
Locustdale colliery, Locustdale, Columbia county	1,086.25
G. W. John & Bro. colliery, Mariam, Northumberland Co	1,330.27
Locust Gap colliery, Locust Gap, Northumberland county	1,190.28
Locust Gap Creek, Locust Gap, Northumberland county	1,090.28
Junction, Mine Hill and Shamokin railroad, Northumberland county	1,025.00

The above elevations have been kindly furnished by W. H. Bines, Esq., C. E. of M. H. and S. H. R. R., from late surveys made by the company, which railway and branches, with rolling stock, equipments, rights and franchises, etc., have been lately leased to the Philadelphia and Reading railroad company for a term of 999 years.

ELEVATIONS OF DIFFERENT POINTS ABOVE MT. CARBON.

	Feet above mid-tide.
Mt. Carbon Junction, at Mt. Carbon, Schuylkill county	591.2
Wadesville, on Danville and Pottsville railroad	790.48
Beechwood colliery, Mt. Laffee railroad	847.78
New Castle colliery, Mill Creek railroad	876.1
Port Carbon Crossing	627.8
Pottsville, front Pennsylvania Hall	633.75
Middleport station	712.9
Tuscarora station	895.7
Mountain Link Summit, above Tuscarora	1,024.8
Tamaqua Centre at depot	787.5
St. Clair shaft colliery, furnace level	706.1
G. W. John, Eagle colliery	827.9
Desocarres and Van Winkle colliery, top of Slope Sharp Mountain	1,273.6
Mahanoy Junction with Lehigh Valley R. R.	1,093.00
Mahanoy tunnel, east end	1,312.2
Mahanoy tunnel North end, length 4,500 feet	1,334.00
Hartford colliery at Mahanoy city	1,235.00
St. Nicholas colliery, Waste House Run	1,140.9
New Boston colliery, top of Broad Mountain	1,723.00

The above elevations have been kindly furnished by Henry K. Nicholls, R. E., P. R. C. and I. company, Pottsville.

By James F. Smith, R. E., Schuylkill Navigation company, Reading, Pennsylvania, the following elevations have been furnished me: Surface of water at Lock No. 1, at Port Carbon, 618.63. Surface of water at Silver Creek Dam, Silver Creek, 1,510.63.

NOTE.—The Schuylkill canal, with all its real estate, water rights, docks, boats, cars and franchises have also been leased to the P. and R. R. R. company for a term of 999 years.

Distance from Philadelphia to the end of canal navigation is 101 miles. The water has a fall of 892 feet in seven miles, or 127⅞ feet per mile.

LOCATIONS OF POINTS ABOVE MID-TIDE.

	Feet above mid-tide.
Pinegrove depot	512
Lorberry Junction railroad	611
Terminus of track at Lower Rauch Creek breaker	1,001
Switch Junction, Miller, Graff & Lor. Extension railroad	1,278
Terminus of Switch-back, Miller & Graff's new breaker	1,364
Tremont depot	764
Good Spring railroad, Heil & Detter's branch	764
Colket colliery, at breaker	917
Colket colliery drift, at terminus of branch	1,012
Donaldson water level	923
Nutting & Lewis' breaker, junction of branch, with G. S. railroad	1,101
Nutting & Lewis' terminus of G. S. railroad	1,177
Good Spring station	1,320
Lyken's Summit coal company's slope level	1,428
Keffer's, at Summit station	1,463
Tower City station, at slope level on the railroad	1,350
Brookside station, at slope level on the railroad	1,275
Junction of Lorberry Extension and Lorberry railroad	1,134

From surveys made on the Mahanoy and Shamokin route:

	Feet above mid-tide.
Head of Mahanoy planes, Frackville	1,479
Foot of Mahanoy planes, Frackville	1,124
St. Nicholas station	1,155
Oakland	940
Ashland	881
Ashland Summit, Cambrian colliery	1,155
Locust Dale colliery, terminus of railroad junction	1,095
Helfenstine, at Ben Franklin colliery	1,175
Locust Swamp summit, near Locust Gap	1,238
Stewartsville colliery, Northumberland county, at Mt. Carmel	1,072
Coal Ridge colliery, Northumberland county, at Mt. Carmel	1,131
Preston colliery No. 1, Schuylkill county, at Girardsville	1,090
Cuyler colliery, Raven Run, north of Girardville	1,360
Girardsville colliery, late Col. J. J. Conner	1,051
Wm. Penn shaft, west Shenandoah City	1,073
Koh-i-noor shaft of R. Heckscher & Co., Shenandoah City	1,240
Continental colliery, Columbia county	1,366
Centralia colliery, Columbia county	1,465
New Boston colliery, Schuylkill county	1,520
Greenback colliery, Northumberland county	895
Shamokin depot, Northumberland county	730
Trevorton colliery, Northumberland county	760

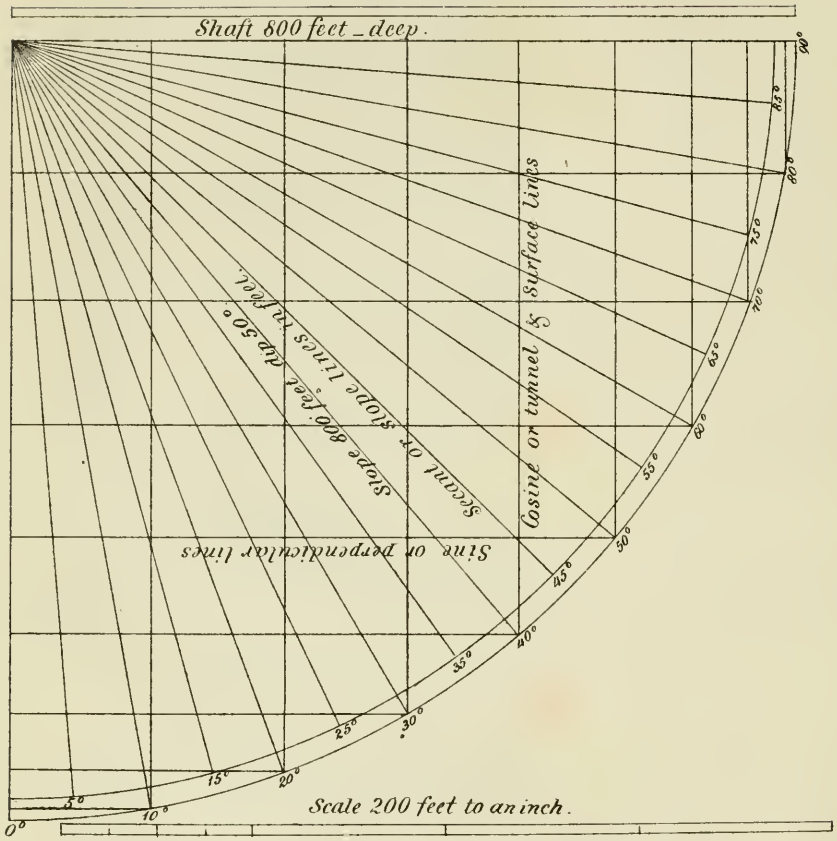
The above elevations have been kindly furnished me by C. E. Byers, Esq., C. E. and superintendent Broad Mountain railroad.

For barometrical reference these tables will be found very convenient and particularly correct.

Weight of Coal in Tons, Per Act, from One Foot to Forty Feet Thick.

THICKNESS IN FEET	2 inches.	3 inches.	4 inches.	5 inches.	6 inches.	7 inches.	8 inches.	9 inches.	10 inches.	11 inches.
One foot	1,519.25	1,899.06	2,025.66	2,152.27	2,278.87	2,405.48	2,532.08	2,658.69	2,785.29	2,911
Two feet	3,038.50	3,418.31	3,544.91	3,671.52	3,798.12	3,924.73	4,051.33	4,177.94	4,304.54	4,431
Three feet	4,557.75	4,937.56	5,064.16	5,190.77	5,317.87	5,443.98	5,570.58	5,697.19	5,823.79	5,950
Four feet	6,077.00	6,456.81	6,583.41	6,710.02	6,836.62	6,963.23	7,089.83	7,216.44	7,343.04	7,469
Five feet	7,595.25	7,976.06	8,102.66	8,229.27	8,355.87	8,482.48	8,609.08	8,735.69	8,862.29	8,988
Six feet	9,115.41	9,495.32	9,621.92	9,748.53	9,875.13	10,001.74	10,128.34	10,254.95	10,381.55	10,508
Seven feet	10,634.76	11,014.51	11,141.17	11,267.78	11,394.38	11,520.99	11,647.59	11,774.20	11,900.80	12,027
Eight feet	12,154.01	12,533.82	12,660.42	12,787.03	12,913.63	13,040.24	13,166.84	13,293.45	13,420.05	13,546
Nine feet	13,673.27	14,053.08	14,179.68	14,306.29	14,432.89	14,559.50	14,686.10	14,812.71	14,939.31	15,065
Ten feet	15,192.52	15,572.33	15,698.73	15,825.54	15,952.14	16,078.75	16,205.35	16,331.95	16,458.56	16,585
Eleven feet	16,711.77	17,091.58	17,218.18	17,344.79	17,471.39	17,598.00	17,724.60	17,851.21	17,977.81	18,104
Twelve feet	18,231.02	18,610.83	18,737.43	18,864.04	18,990.64	19,117.25	19,243.85	19,370.46	19,497.06	19,623
Thirteen feet	19,750.27	20,509.89	20,763.09	21,016.31	21,269.51	21,522.73	21,775.93	22,029.15	22,282.35	22,535
Fourteen feet	21,269.52	22,408.95	22,788.75	23,168.53	23,548.38	23,928.21	24,306.01	24,687.84	25,067.64	25,447
Fifteen feet	22,788.77	24,308.01	24,814.41	25,320.85	25,825.25	26,333.69	26,840.09	27,346.53	27,852.93	28,359
Sixteen feet	45,577.56	46,716.99	47,096.79	47,476.62	47,856.42	48,236.25	48,616.05	47,995.88	49,375.68	49,755
Seventeen feet	60,770.08	62,289.23	62,795.72	63,302.16	63,808.56	64,315.00	64,821.40	65,327.84	65,434.24	66,340

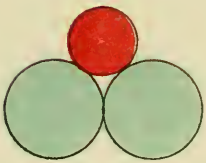
Slope Diagram.

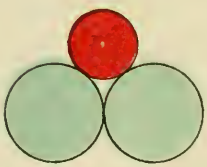


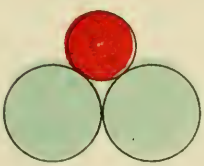
Deg.	Sines.	Cosines.	Deg.	Sines	Cosines.	Deg.	Sines	Cosines
5°	08716	99619	35°	57358	81915	65°	90631	42262
10°	17365	98481	40°	64279	76604	70°	93969	34202
15°	25882	96593	45°	70710	70710	75°	96593	25582
20°	34202	93969	50°	76604	64279	80°	98481	17365
25°	42262	90631	55°	81915	57358	85°	99619	08716
30°	50000	86603	60°	86603	50000	90°	10000	00000

Sine

Constituents of
Carburetted Hydrogen Gas
and Atmospheric Air.







Plates.

The plates are illustrative of the combustion of the gaseous portion of coal and of the modes by which it may be effected, by C. W. Williams, Liverpool.

The diagram will enable a person having charge of a colliery to ascertain with great accuracy any point upon the surface where it may be most convenient to relieve his miners in case of the closing in of the slope by accident.

The object of the diagram and table being given is to enable a miner, in case of an accident arising from the caving in of a slope, he could, with a degree of certainty, find the proper point to make a new opening by which he could relieve his men.

Thus, lay the edge of the ruler on the line which corresponds with the dip of the slope, and from the scale take the distance of your slope in feet; from this point lay the ruler on a line of the perpendiculars or parallel to one; this gives the height in feet from the surface to the bottom of the slope; next lay the ruler on a level line, parallel to any line which is convenient from the bottom of the slope, and this will give the distance in feet from the top of the slope to the point directly over the bottom of the slope. At this point any man of ordinary capacity can measure the course of a gangway on the surface from a map to the location desired; here he can find the height of any worked breast and its length in feet, which length he takes from the length of the slope, as before, by which he can ascertain the depth in feet from the surface to the face of the breast, to be governed by the dip of the vein, he may know where to sink a shaft or sink upon the crop of the vein, or mathematically thus (see on the diagram):

A slope 800 feet long on a dip of 50° whose sine is 76,604×800 feet= 612.83+feet for its perpendicular, and its cosine 64,270×800 feet=514.16 +feet for its surface line; then 514+feet from the top of the slope on the surface, but on a line with its course, will give the point directly over the slope bottom, and 612+feet will be its depth From this point the course can be measured on the surface as shown by the map.

In the absence of a surveyor or civil engineer, a person well acquainted with a mine and understands the map of the colliery can undertake, without fear of being misdirected, to measure the proper distances to any given breast or opening in the mine, providing, always, that he uses proper judgment and keeps a correct tally of his measurements.

There are many practical miners, who, should an occasion require it, would take advantage of this method.

Casualties in Coal Mines.

If the proper compliance with the wise provisions of the mining law was obeyed, and a careful regard had to the safety of employees by themselves, which they should encourage amongst themselves as a body, it would have a powerful influence over casualties in mines; by the exercise of forbearance and patience and regarding rules and regulations in mines properly, by the use of their combined judgment, careless, rash and hasty parties would receive such an effective rebuke that very many cases of fatal accidents could be avoided, and by regarding the authority of those in command of the mine many disagreeable differences could be amicably adjusted without resort being had to stoppages and misunderstandings.

The candid miner will say that many accidents are occasioned by the imprudent conduct of careless persons, who, through some sort of fatality mismanage their work, while for a time may be successful, but is surely to result in injury and the casualties now on record are, in many instances made up of such.

GASES, THEIR CHARACTER, CONSTITUENTS, MEASURE AND WEIGHT.

Carbonic Oxide.—This gas is one of the results of burning carburetted hydrogen with an imperfect supply of air, and receives its appelation as choke-damp by the miner. The blue flame that flickers over our common coal fires is caused by the combustion of carbonic oxide. The miner by some hap may escape the fury of an explosion, but cannot escape the suffocating effect of the after-damp, or its deleterious consequences.

Black damp.—Carbonic acid gas, or carbonic oxide, is a colorless gas, yielding an acid taste and a slight pungent odor, and is nearly double the weight of common air; but when subjected to a pressure of 38½° atmosphere, it is condensed into a colorless fluid. This gas is an extinguisher of all luminous bodies placed in it, and is fatal to life. Diluted largely with air, it acts as a highly narcotic poison. Fatal results arise from entering old mines, wells and vats, etc. When this gas accumulates freely, for a precautionary measure, a lighted lamp should be introduced into these places, when, on its coming in contact with it, the flame will be extinguished; if not, the place may be entered with safety. In 1800, a Mr. Woodhouse determined the true nature of this gas.

Carbonous oxide.—Carbonous oxide is still another deleterious gas, colorless, and emitting a peculiar suffocating odor. It requires forty times its volume of water for solution; it is readily combustible; its characteristic is a clear blue flame, unites with chlorine, and forms phosgene gas. It is totally irrespirable, it being an active deadly poison. One per cent. mingled with common air will prove fatal. This gas will readily pass through heated cast iron metal, such as stoves, furnaces, etc., and is assumed to propagate serious diseases in many instances. With sufficient ventilation, no danger need be apprehended from this gas.

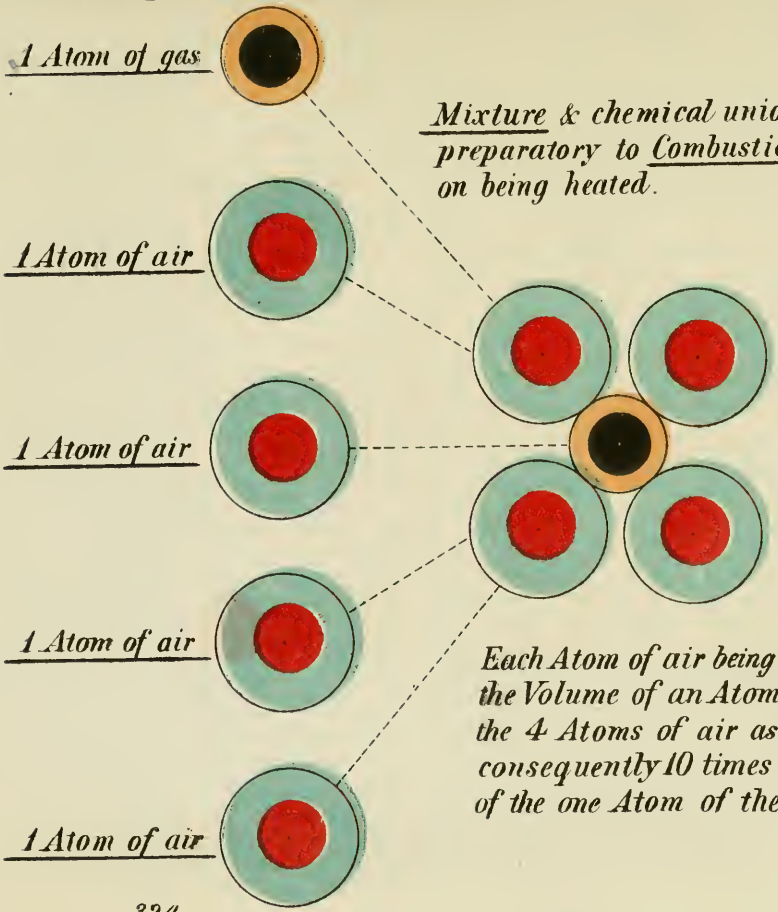
Hydro-sulphuric acid gas.—When sulphur and hydrogen are set free together, they form a colorless, transparent gas, giving off the order of rotten eggs. It is produced by the putrefaction of all organic substances containing sulphur, and is exceeding deleterious when respired. It exists in mines, mingled with other equally destructive gases. Rotten timber, saturated or partly submerged in water, discharges large quantities of this gas, and renders the water of many wells nauseous. 1-1500th of this gas destroys small birds; 1-800th of it killed a large dog, and 1-120th killed a horse.—*Brande.*

Sulphurous acid.—When burned in air it unites with oxygen, forming a colorless gas of a peculiar disagreeable taste, and a most suffocating smell. It extinguishes a light, and is respirable, but with great difficulty, and has the quality of bleaching that with which it comes in contact. This gas is also generated in some coal mines.

Hydrogen.—Hydrogen gas occurs free in volcanic gases, forming, according to Bunsen, 45 per cent. of it. It is a colorless, odorless and tasteless gas. It is the lightest known form of matter, being 14 times lighter than air, and 11,000 times lighter than water. It diffuses greater than any known gas. Its refractive power on light is very remarkable, being 6½ times that of air. It is combustible at 500°, and readily combines with the oxygen of the air. Its flame is of a pale white color. It does not, of itself, support combustion or respiration. A lighted lamp placed in it is soon extinguished, and an individual in its influence loses his life. This gas is also generated in coal mines, and designated by the miner as white-damp.—*Graham.*

Oxygen gas.—This is the most important of all the elements in nature, and enters into all the chemical changes, and in most of them it acts the prominent part. Its condition is a gas resembling air, which is only a

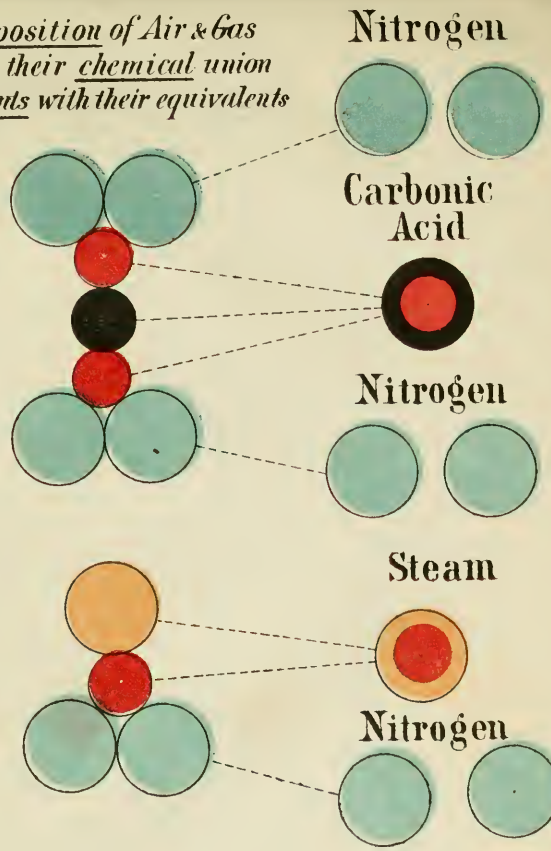
Single Atoms of air and gas being the Compounds of the constituents as in the preceeding column



Mixture & chemical union preparatory to Combustion on being heated.

Each Atom of air being 2½ times the Volume of an Atom of gas the 4 Atoms of air as above are consequently 10 times the Volume of the one Atom of the gas.

State of decomposition of Air & Gas preparatory to their chemical union of their constituents with their equivalents of Oxygen.



Product of the Combustion of one Atom of Gas with its equivalent Atmospheric Air

Gases. *Explanation of the Symbols of gases, their relative Weights and Volumes.*

By C.W. Williams, Liverpool, 1841

Oxygen	8.	
Carbon	6.	
Nitrogen	14.	
Hydrogen	1.	
Carburetted Hydrogen Gas	8.	
Carbonic Acid	22.	
Vapor or Steam	9.	
Atmospheric Air	36.	

mixture of many gases. Its characteristics is a colorless, transparent, tasteless, inodorous gas, resembling common air, and possesses the same mechanical properties. The term oxygen signifies air-former. It is extensively diffused; it constitutes one-fifth of the weight of the atmosphere, eight-ninths of the ocean and all aqueous bodies; nearly one-half of the solid matter that forms the crust of the globe—rocks, earth, animals, plants and existing substances. It unites with all the elements, forming a compound termed oxide; its combining character is termed oxidation, and its separating qualities is termed deoxidation. It is a principal supporter of combustion, and all substances that burn in air burns in pure oxygen gas. The least spark upon a wick will take fire from it, so will iron wire burn in it and phosphorus will produce a light so brilliant in it that the eye cannot endure it; atmospheric oxygen is diluted with four times its bulk of another gas, (hydrogen,) which, if taken alone, extinguishes fire altogether, but when combustion takes place, the hydrogen is converted into a watery vapor, and carbonic acid is set free, both escaping away into the atmosphere. Oxygen seizes upon the hydrogen, if present in sufficient quantity, and in this combustion the carbon is set free in the form of burnt spark, which, when it touches the oxygen, is extinguished; but when the burning body contains a disproportionate amount of carbon, as turpentine, more of it is set free than the oxygen can consume and the flame smokes; but when the hydrogen is in excess as in alcohol, there is much heat, little light and no smoke; when mingled, these gases correct their defects and form the basis of the "burning mixtures;" oxygen is life; when the oxygen is consumed by respiration or temperature, carbon remains and death is the consequent result.

Nitrogen gas.—This is a most deleterious gas; after respiration, and washed with lime water, it will not support respiration or combustion; chemistry shows it constitutes four-fifths of the atmosphere; it combines with oxygen and numerous acids, and forms a component part of many vegetable and animal substances, but it is an odorless, colorless and tasteless gas, slightly lighter than air, never being liquified by cold or pressure. It combines with carbon, and at a high pressure of temperature with oxygen It is a non-supporter of combustion, and at ordinary temperatures is not itself combustible. It is irrespirable, though it exerts no poisonous effects upon the tissues. Its characteristic is suffocation, though so far different when free, that the compounds formed by nitrogen are amongst the most energetic known. The corrosive nitric acid, the nitro-glycerine, the poisonous prussic acid, and the alkaloids all contain nitrogen. In mining nomenclature, it received the name of stone-damp.

Sulphur is known to exist in union in most specimens of coal gas, and from stagnant pools; it is extensively mined in Sicily, from large deposits in blue clay formations; it has an extensive affinity to combine with metals; it melts at 230° to a yellow liquid, and at 450° changes to molasses color substance, which if quenched in cold water, becomes elastic like india rubber, but from this allotropic condition it gradually returns to its original state.—*Youmans.*

Coal Trade of Great Britain.

The following statement exhibits the quantity of coal mined in Great Britain since 1860:

Date.	Tons mined.	Tons exported.
1860	83,200,000	7,400,000
1861	85,600,000	7,200,000
1862	86,600,000	7,600,000
1863	88,200,000	7,500,000
1864	92,700,000	8,000,000
1865	88,100,000	8,500,000
1866	101,630,000	9,367,000
1867	104,500,480	10,569,829
1868	103,141,157	10,967,032
1869	107,427,557	11,500,000
1870	110,431,192	11,702,649
1871	117,352,028	12,816,424
1872	123,497,316	13,211,961
1873	124,000,000	12,362,333
1874		

Coal Trade in Nova Scotia.

The following statement exhibits the production of coal in Nova Scotia in the following years:

1869	568,062	Imported to United States		257,485
1870	625,769	do.	do.	168,480
1871	673,242	do.	do.	165,431
1872	880,950	do.	do.	154,092
1873	1,051,467	do.	do.	232,400

Basis For Wages in 1873 and 1874.

The monthly prices of coal at which miners' and laborers' wages were based upon in these two years, at a minimum, for contract work at $2 50, and graded to slide down to $2 25, and for each three (3) cents it advanced above $2 50, one per cent. came to the miner, or one-third the advance to the end of the year.

Months.	Basis in 1873	Per cent. above agreement	Basis in 1874	Per centage above agreement
January	$2 50			
February	2 62½	4 c. above wages		
March	2 62½	4 c. above wages		
April	2 49	Basis wages		
May	2 51	Basis wages		
June	2 51	Basis wages		
July	2 55	2 c. above wages		
August	2 61	3 c. above wages		
September	2 61	3 c. above wages		
October	2 64	4 c. above wages		
November	2 66	5 c. above wages		
December	2 74	8 c. above wages		

Average price, \$2 58½; this would give a miner, at 25 days per month, about \$82 50 per month; but his mining expenses must be deducted out of this amount, which would net him some \$62 50 per month, at only nine and one-half months for the year, it will only amount in the aggregate to \$593 75, or \$49 50 per month, and this at contract work; while the miner at days labor is set down at the following rates, as also the laborers:

	Per month.
A miner by the week	\$13 00=\$52 00
A miner's laborer, by the week	11 00= 44 00
An outside laborer, by the week	10 00= 40 00

This would net to such miner, at 9½ months, \$391 60; and to the miner's laborer, at 9½ months, \$328 78; and to the outside laborer, at 9½ months, \$306 82; these figures are about correct, and upon which basis these men must depend; then any reductions in wages, occasioned by strikes, accidents or otherwise, will still reduce his means of support still less, while out of this amount must be deducted taxes, incidentals, subscriptions of sundry items, medicine, etc., which, when a family of six or more persons are maintained, his savings are not at all encouraging.

Nothing but constant work will warrant a means of subsistence, and employers should provide this means at all times to worthy employees who have served well for a number of years, and by reason of such long services, and many of which are difficult and destructive to health, have unfitted them for any other avocation in future years.

Coal Tonnage of the Mining District of Schuylkill, *proportioned to the number of deaths and injuries in the same for six years, ending December* 31, *A. D.* 1874.

1869. Gross tonnage, 4,688,994 tons.	1870. Gross tonnage, 3,938,429 tons.	1871. Gross tonnage, 5,850,000 tons.
81,994 tons—1 death.	35,161 tons—1 death.	45,341 tons—1 death.
51,556 tons—1 injury.	15,628 tons—1 injury.	14,408 tons—1 injury.
151,296 tons—1 widow.	54,700 tons—1 widow.	88,636 tons—1 widow.
31,259 tons—1 orphan.	15,628 tons—1 orphan.	22,162 tons—1 orphan.
339 tons—1 employed.	187 tons—1 employed.	197 tons—1 employed.

1872. Gross tonnage, 7,537,468 tons.	1873. Gross tonnage, 8,008,598 tons.	1874. Gross tonnage, tons.
83,829 tons—1 death.	63,561 tons—1 death.	.....
24,669 tons—1 injury.	21,131 tons—1 injury.	.....
154,826 tons—1 widow.	108,224 tons—1 widow.	.....
44,600 tons—1 orphan.	29,335 tons—1 orphan.	.....
247 tons—1 employed.	377 tons—1 employed.	.....

The aggregate gross tonnage of coal mined in Schuylkill district during the six years ending December 31, A. D. 1874, is 40,024,894 tons, estimating the consumption and marketed coal.

A Statement *giving the names of the different collieries and the names of the coal seams worked in each in the mining district of Schuylkill, comprising the counties of Schuylkill, Northumberland, Columbia and Dauphin respectively.—Mr. Bannan's Coal Register.*

South of Broad Mountain.

Name of Collieries.	Location of Collieries.	Termenology and Local Names of Coal Seams.	Status of Collieries.
Otto, 1, 2, 3	Branchdale	Mammoth, E, and others	In operation
White Oak	West New Castle	do	do
Yorkville	South Pottsville	do	do
Norwegian	Mount Laffee	Primrose, G	Idle
Eureka	Donaldson	Mammoth, E	Operation
Monitor	Wadesville	Primrose, G	do
Commercial	New Philadelphia	Primrose, G; South and N. dip and E	do
Tremont drift	Tremont	Primrose, G	do
Manchester	Wadesville	Primrose, G, and Orchard H	do
Ellsworth	West New Castle	Mammoth, E	do
Franklin	Upper Rauch Creek	Mammoth, E; in two splits and 7 foot seam	do
Forestville	Forestville	do do	do
Hickory shaft	Wadesville	do do	do
Ledger vein	Silver Creek	do do	do
Jackson	New Castle		do
Eagle	St. Clair	Mammoth and 7 foot, and Skidmore, D	do
Kear slope	Mine Hill Gap	Mammoth, E do	do
Rainbow shaft	St. Clair	do do	Suspended
Oakdale	Glen Carbon	Mammoth, E, in splits, and the 7 foot	In operation
Richardson	Glen Carbon	Mammoth, E	
Spruce Forest	East New Castle	Mammoth, E; the 7 foot and Skidmore, D	
Black Heath	Lower Rauch Creek	Mammoth, E and 7 foot seams	
Lincoln	Lorberry Tunnel	Buck Mountain B, or Lykens Valley seam	Operation
Palmer	Phœnix Park	Diamond, J	do
Eckert	Donaldson	Mammoth, E, in two splits	
Middle Creek shaft	Middle Creek	Mammoth, E	Operation
Colket	Donaldson, West	Mammoth, E, in splits and Primrose, G	do
West End	Donaldson, West	Buck Mountain B, or Lykens Valley seam	
Eagle Hill shaft	Eagle Hill	Mammoth, E, in splits and 7 foot	Operation
Kalmia	Paul Valley, South	Lykens Valley, B	do
Pine Knot, East and West	Coal Castle	7 foot E, G, and Holmes, F, seams	Repairs
Live Oak	Mine Hill Gap	7 foot and E seams	Suspended
Diamond, No 2	Glentworth	Primrose, G, and Holmes, F, seams	Operation

Peach Orchard	Tuscarora	Peach Mountain, M	Operation
York Farm	West Pottsville	Buck Mountain, M	do
Taylorsville	Taylorsville	Mammoth, E, in two splits	do
Glendower	Glen Carbon	Mammoth, E, and Primrose, G	do
Thomaston shaft	Thomaston	Mammoth, E, in two splits	do
Brookside	Brookside	B, or Lykens Valley seam	do
Beechwood	Mount Laffee	Mammoth, E; 7 foot and Primrose, G	do
Kentucky	Tuscarora	Mammoth, E, and 7 foot	do
Pine Forest shaft	St. Clair	Mammoth, E; 7 foot; Skidmore, D	do
Pyne, No. 1 and 2	Swatara	do do do	do
Tower	Tower City	B, or Lykens Valley	do
Alaska	Tamaqua	Mammoth, E, and 7 foot seams	do
Diamond, No. 1	Forestville	Diamond, J	do
Phœnix, 1, 2 and 3	Phœnix Park	Primrose, G	
Starr	Ravensdale	Peach Mountain, M, seam	
Sharp Mountain	South Pottsville	Mammoth, E	
York	West Pottsville	Gate seam	
Feeder Dam	Port Carbon, North	A and B seams	
Buckville	Buckville		
Newkirk	New Kirk		
Wabash	New Kirk		
High Mines	Tamaqua		
Greenwood	Tamaqua		
Bull Run	Coaldale		
Coaldale	Bull Run		
East Mine	East Delaware	Little Tracy, L	
Wilson drift	West Delaware	Peach Mountain, M	
Peach drift	West Delaware	do	

NAMES OF THE DIFFERENT COLLIERIES, &c —*Continued.*

COLLIERIES NORTH OF BROAD MOUNTAIN, IN SCHUYLKILL COUNTY.

NAME OF COLLIERIES.	LOCATION OF COLLIERIES.	TERMENOLOGY AND LOCAL NAMES OF COAL SEAMS.	STATUS OF COLLIERIES.
Furnace	Gilberton	Mammoth, E	Active
Girardsville	Girardsville	Mammoth, E and Skidmore, D	do
M'Michael	Girardsville	Mammoth, E and Skidmore, D	do
Beaver Run	Mahanoy City	Skidmore, D and Gamma, C	do
Bear Ridge	Gilberton, North	Skidmore, Mammoth, E; Primrose, G	do
Union, 1	Big Mine Run	Skidmore, D; Mammoth, E	do
Big Mine Run	Big Mine Run	Skidmore, D; Mammoth, E	do
Glendon	Mahanoy City	Skidmore, D; Gamma, C	do
Mahanoy City	Mahanoy City	Skidmore, D; 7 foot Skidmore, D; Gamma, C	do
Sunnyside	Mahanoy City	Buck Mountain, B	
Excelsior	Ashland City	Mammoth, E and 7 foot	Active
Malvern	Mahanoy City	Buck Mountain, B	do
Hoffman	Mahanoy City	Mammoth, E in splits with B and C	do
Tunnel Ridge	Mahanoy City	Mammoth, E in splits with B and C	do
Grant	Mahanoy City	Mammoth, E in splits with B and C	do
Boston Run	South Gilberton	Mammoth, E; Skidmore, D	do
East Mahanoy	Mahanoy City		
Gilberton	Gilberton		
Mammoth	Raven Run		
Girard	Girardsville		
Oak Hollow	Mahanoy City		
Wm. Penn	Shenandoah, South		
Cuyler	Raven Run		
Draper	Gilberton		
Mahanoy	Mahanoy City		
Honey Brook, 1, 2, 3, 4	Honey Brook		
Holmes	Mahanoy		
Koh-i-noor	Shenandoah, South	Mammoth, E; 7 foot and G seams	
Turkey Run	Shenandoah, South	Mammoth, E and 7 foot	
Indian Ridge	Shenandoah, South		
Keystone	Locustdale		
Knickerbocker	Mapledale		
Copley	Mahanoy City	Mammoth, E and Primrose, G	

Demands for Mining Operations.

The necessity experienced in deep mining operations, as well as in all other branches of national industry, of substituting machinery for manual labor, has brought into the market, during the last few years, a large number of rock and coal drilling machines.

They are, however, of difficult use below the surface of the earth to fulfill the need sought for when worked by steam, which is almost impossible to conduct far down into a mine to be effective, by reason of its condensation; and also on account of its timber rotting qualities, and inconveniencing the miners by its heat and moisture. And when steam boilers are introduced into the interior of the mine, in order to avoid condensation, the danger to the well-being of the mine is largely increased, and often sets fire to the mine by reason of the severe draft of air required to keep up a constant head of steam. Therefore a demand for air compressing machinery has sprung up, in order to work this machinery by compressed air instead of steam; and this answers the purpose so admirably, that labor-saving machinery, worked by air, is now being introduced very rapidly into the mines of this country. Air can be led any distance, and through any temperature, without condensation, and with much less loss from leakage than steam, and instead of having to be brought out of the mines by long exhaust pipes on its discharge from the machines, ventilates and cools the place.

Some trouble is still experienced from the freezing of the pipes in winter, as there is vapor of water contained in the air which condenses when it cools, and sometimes freezes up the pipes, and even the machines when working.

This water has also made it impossible, so far, to use compressed air expansively to any large extent, as steam is worked with such excellent results for economy, because the temperature of the air decreases so much in expanding, that the water vapor contained in it condenses and freezes up the machinery.

It is therefore of the highest importance that the air should be perfectly dry; but this is difficult to obtain, as the great heat generated in the air compressor during the act of compression, necessitates a constant artificial cooling of the compressing cylinder, which has been done either by injecting a stream of water into the cylinder at every stroke, or by keeping a large quantity of water working to and fro in it.

In order to obviate these difficulties, Captain John Ericsson constructed a compressor with upright open top brass pump cylinders immersed in a bath of water, and washing the interior walls of the pump at every stroke by water lying on the pump buckets without ever allowing the water to come into contact with the compressed and heated air.

The compressed air power company of New York city, organized to develop the business of furnishing air for power on an extensive scale, have adopted this plan of Mr. Ericssons for their machines, which have proved to work successfully in the large and small sized machines.

Their large compressor at the Southerland Falls marble company's works in Vermont, is worked by the power of the waterfall situated some distance away from the works and the air is let into the disused steam boilers of the quarrying machines and into the stationery engine of the factory and is much more preferred by the attendants to the steam, which has been entirely suspended there.

A feature introduced by this company is to work their compressor by a belt, or gearing wherever possible, instead of a separate steam engine. The power required to compress air is considerable, making compressed air

a rather expensive motor, and it is of greatest importance that it should be manufactured as economically as possible in first outlay and running expenses, and this is accomplished much better by attaching to the large engine which is generally found about a mine for hoisting, pumping and other purposes, than by a small separate cylinder working without expansion.

Wherever possible, water-power is utilized, to avoid loss from the continuous running of the compressors when the drills, etc., may be stopped a relief valve is made, which is set to any determined pressure and opens a relief port from the pumps into the atmosphere, as soon as that pressure is exceeded in reservoir and pipe, and this allows the pumps to run without accumulating pressure and consuming power.

Compressing air in a dry cylinder does not obviate the trouble with condensed water completely, as the vapor suspended in the atmospheric air when taken in, is much more than can be held suspended in the diminished volume after compression, and after the air is cooled down again to common temperature.

To remove this vapor in the atmosphere, this company have devised a condenser for cooling the compressed air completely, and depositing and running off the condensed water before the air enters the pipes.

The great shafts of the Philadelphia and Reading Coal and Iron Company now sinking at Pottsville, in Schuylkill county, the drilling of which are successfully accomplished with compressed air power, the results acquired by this motor renders it highly satisfactory in developing their large deep coal seams in the Pottsville basin to the extraordinary depths of nearly two thousand feet.

This laudable work was undertaken by this company, bringing science, modern improvements and engineering skill to their aid, by advice of their president, Franklin B. Gowen, Esq., and George DeB. Keim, as president of coal estates. The work of surveys, plans, improvements and construction have been confided to the superintendence of their general engineer and projector, General Henry Pleasants, who was the projector of the Petersburg mine explosion of thrilling memory.

The execution of the Diamond drill in these shafts, the first of American coal shafts on this continent as to depth, style and capacity, has proved admirably a success, and Pennsylvania indeed, and Schuylkill county especially, may well feel proud at home and abroad of this great triumph of mining skill in developing this boundless deposit of the best known anthracite coal in the world.

A Condensed Statement *of the collieries of the mining district of Schuylkill, showing their capacities, power and casualties.*

Remarks.	1874.	1873.
No. of collieries in the district of Schuylkill	171	176
Visits of official inspections made	1,065	774
Miles traveled on official business	13,988	12,415
Men employed at the colliery	17,795	15,701
Boys employed at the colliery	5,460	4,829
Hands employed—total	23,255	20,530
Deaths in and about the collieries	104	126
Maimed and injured persons	345	379
Widows of miners	53	74
Orphans of miners	185	273
Slopes in active operation	162	143
Shafts in active operation	17	18
Drifts in active operation	130	150
Tunnels in active operation	72	.....
Miles of track in use at collieries	313	.....
Breasts of coal worked	2,738	.....
Steam engines in use	695	692
Horse power of these engines	39,618	41,316
Steam ventilating fans	112	100
Horse power of these fans	2,650	.....
Pumps used for drainage	175	.....
Horse power of these pumps	18,224	.....
Steam boilers in use	1,654	1,613
Furnaces in use for ventilation	25	18
Mules worked in and at collieries	2,277	.....
Mine wagons in use at collieries	7,597	.....
Explosions of fire-damp in the mines	44	58
Explosions of powder, blasts and shots, etc	17	26

DISTRICT COLLIERY STATISTICS *for* 1873 *and* 1874, *showing the casualties, capacities and force employed.*

REMARKS.	Pottsville dis'ct.		Ashland dis'ct.		Shamokin dis'ct	
	1874.	1873.	1874.	1873.	1874.	1873.
No. of collieries in operation	48	46	70	75	53	55
Visits of inspection	386	296	210	268	469	210
Miles traveled to and fro	4,630	4,427	4,076	3,420	5,282	4,568
Men employed	3,434	3,809	8,695	7,047	5,666	4,845
Boys employed	1,228	1,270	2,367	2,348	1,869	1,211
Hands employed—total	4,662	5,079	11,062	9,395	7,535	6,056
Deaths at collieries	35	29	44	53	26	44
Persons maimed	100	117	95	161	150	101
Widows	14	15	20	31	19	28
Orphans	65	61	71	114	49	98
Slopes in operation	44	47	76	55	42	41
Shafts in operation	5	9	7	6	5	3
Drifts in operation	18	9	52	42	60	59
Tunnels in operation	12	.....	37	.....	23	.....
Miles of railroad track used	49	.....	129	.....	135	.....
Breasts of coal working	503	.....	1,411	.....	824	.....
Steam engines in use	157	204	356	332	182	156
Their horse power	11,631	16,203	17,542	17,255	10,445	7,858
Fans in use	22	29	59	45	31	26
Their power	506	.....	1,500	.....	644	.....
Pumps of all sorts	38	.....	76	.....	61	.....
Their power	4,811	.....	8,860	.....	4,553	.....
Steam boilers in use	346	497	794	862	514	257
Furnaces in use	3	7	18	8	4	3
Mules at the collieries	377	.....	989	.....	911	.....
Wagons at the collieries	1,404	.....	3,614	.....	2,579	.....
Fire-damp explosions	28	32	7	14	9	12
Powder and blast explosions,	2	6	5	12	10	8

COUNTY COLLIERY STATISTICS *for* 1874 *and* 1873, *showing their capacities, casualties and the force employed.*

REMARKS.	Schuylkill.		Northumb'ld.		Columbia.		Dauphin.	
	1874.	1873.	1874.	1873.	1874.	1873.	1875.	1873.
Collieries working	130	129	39	32	6	7	5	5
Visits made	560	586	424	153	24	20	18	15
Mileage	9,696	8,886	2,802	2,622	160	120	720	600
Men employed	11,234	11,331	3,240	2,754	836	870	1,111	1,063
Boys employed	3,796	3,777	1,049	918	215	290	303	354
Total hands employed	15,030	15,108	4,289	3,672	1,051	1,160	1,414	1,417
No. of deaths	78	92	16	29	2	2	8	3
No. of maimed	226	319	92	48	8	7	16	5
No. of widows	36	51	6	20	.....	1	1	2
No. of orphans	140	207	16	62	.....	4	6	.....
Slopes working	118	113	28	19	8	5	9	5
Shafts working	13	16	2	2	.....	.....	.....	.....
Drifts working	72	54	61	49	2	2	2	4
Tunnels working	59	.....	25	25	2	2	2	2
Miles of tracks	198	.....	122	.....	9	.....	20	.....
Breasts of coal	1,961	.....	595	.....	92	.....	81	.....
Steam engines	537	563	99	77	33	28	31	22
Horse power	30,206	33,594	6,171	3,209	2,359	2,145	2,492	1,942
Steam fans	88	84	15	9	5	3	4	3
Horse power	2,151	.....	307	.....	110	.....	87	.....
Pumps, all sorts	132	.....	27	.....	10	.....	9	.....
Horse power	14,446	.....	2,238	.....	1,310	.....	1,340	.....
Steam boilers	11,094	1,439	285	205	92	70	83	45
Furnaces	25	12	12	9	1	2	1	.....
Mules in use	1,440	.....	455	.....	121	.....	271	.....
Wagons in use	5,288	.....	1,479	.....	271	.....	481	.....
Fire-damp explosions	38	55	4	3	.....	.....	1	3
Powder & blast explosions,	8	22	4	2	.....	1	1	.....

COAL TONNAGE OF POTTSVILLE DISTRICT IN THE YEARS 1873 AND 1874.

NAME OF THE COLLIERIES.	1873.	1874.	NAME OF THE COLLIERIES.	1873.	1874.
Beechwood	80,103	.....	Ravensdale	36,389	.....
Pine Forest	59,003	.....	Anchor	34,628	.....
Rainbow Shaft	47,300	.....	Alaska	28,821	.....
Live Oak	20,410	.....	Monitor	15,176	.....
Mine Hill Gap	39,844	.....	Ellsworth	7,754	.....
Pine Knot	28,936	.....	Mammoth Vein	7,745	.....
Glendower	32,907	.....	East Mine Drift	8,236	.....
Thomaston	33,777	.....	Jones and Ward	8,056	.....
Forestville	34,177	.....	Coaldale	45,160	.....
Richardson	14,000	.....	Peach Orchard	7,143	.....
Buckville	6,444	.....	Bull Run	120,000	.....
Lambert	6,118	.....	Kentucky	5,908	.....
Wabash	4,920	.....	Manchester	5,353	.....
Hickory Shaft	122,033	.....	Jackson	3,495	.....
Eagle	84,627	.....	Sharp Mountain	1,710	.....
Oakdale	74,546	.....	York Farm	1,600	.....
Eagle Hill	74,044	.....	York	1,600	.....
Greenwood	41,685	.....	Tamaqua Shaft	2,000	.....
New Kirk	40,097	.....	G. Delaware, West	.....	.....
Taylorville	36,475	.....	G. Delaware, West	.....	.....

Coal Tonnage of Ashland District in the Years 1873 and 1874.

Name of Collieries.	1873.	1874.	Name of Collieries.	1873.	1874.
Keystone	40,216		St. Nicholas	78,546	
East Big Mine Run	66,869		M'Neill, 1, 2, 3 and 4,	166,035	
Tunnel	39,566		Gilberton	69,155	
Indian Ridge	102,988		Primrose	67,212	
Plank Ridge	128,386		Lawrence	66,397	
Preston, 1, 2, 3 and 4	86,173		Shenandoah City	74,517	
Boston Run	54,318		Turkey Run	84,256	
N. Mahanoy	54,333		Furnace	56,205	
Hillside	4,370		Bear Run	55,201	
Knickerbocker	29,404		Girard Mammoth	50,709	
Mahanoy City	94,808		Suffolk	43,728	
Honey Brook, 1, 2, 3 & 4	318,658		Glendon	39,380	
Ellengowan	76,614		Stanton	35,354	
Colorado	149,779		Girard	33,208	
Lost Creek	88,295		West Big Mine Run,	32,606	
Lehigh, No. 3	65,695		Bear Ridge	29,506	
Draper	99,030		West Shenandoah	28,432	
Girardsville	113,827		Cambrian	25,898	
M'Michael	49,038		Excelsior	20,747	
William Penn	149,727		Oak Hollow	19,091	
Koh-i-noor	107,835		Malvern	17,682	
Thomas	99,786		Trenton	10,457	
Cuyler	94,068		Beaver Run	2,554	
Tunnel Ridge	84,421		Hartford		
West Lehigh	84,255		Grant		
East Mahanoy	80,959		New Boston		
Copley	79,696				

COAL TONNAGE OF SHAMOKIN DISTRICT IN THE YEARS 1873 AND 1874.

NAMES OF THE COLLIERIES.	1873.	1874.	NAMES OF THE COLLIERIES.	1873.	1874.
Diamond, No. 2	.....	.....	Royal Oak	700	500
Colket	75,476	.....	Hickory Swamp	82,572	85,065
Diamond, Forestville,	34,628	.....	Reliance	74,639	49,282
East Franklin	46,770	.....	Henry Clay	77,879	69,649
Kalmia	50,625	.....	Trevorton	60,760	63,883
Lower Rauch Creek	117,669	.....	Montor	77,929	65,050
Lincoln	77,730	.....	Excelsior	63,779	49,873
Otto	69,845	.....	Coal Ridge	34,800	5,551
Phœnix, No. 2	7,513	.....	Ben Franklin	39,683	50,171
Pyne	34,230	.....	Greenback	29,182	23,061
Straw	Idle.	.....	Hickory Ridge	18,117	1,919
Tower City	.....	.....	Enterprise	12,399	52,034
Tremont	.....	.....	Shamokin	18,067	3,399
West End	62,825	.....	Helfenstine	606	2,727
Middle Creek	.....	.....	Coal Mountain	.....	.....
Miscellaneous	.....	.....	Daniel Webster	14,348	.....
Brookside	84,227	.....	Lambert	11,205	4,497
			Moreton	19,433	19,696
In Schuylkill co.:			Black Diamond	15,926	22,022
A. S. Wolf	.....	.....	Franklin	2,587	7,138
Big Mountain	70,277	117,720	Marshall	2,877	2,839
Buck Ridge	71,426	56,220	George Fales	8,572	27,721
Burnside	77,726	54,906	Lancaster	543	14,776
Bear Valley	67,700	60,577	Locust Summit	.....	.....
Brady	29,182	518	Margia Franklin	21,104	.....
Luke Fidler	76,381	79,714	Marian	.....	.....
Cameron	103,969	115,810	Locust Spring	.....	14,916
Stewartsville	79,104	78,081	Enterprise, No. 2	.....	3,841
Locust Gap	2,144	22,825	Alaska Shaft	.....	2,510

Total tonnage for 1874	1,221,551	tons.
Do 1873	1,234,070	"
Decrease in 1874	12,519	"

The foregoing is the quantity of coal mined and sent to market from Northumberland county in 1874, by the different operators in that region, furnished by Mr. J. J. John.—*Miners' Journal.*

The above, Northumberland county coal, was distributed as follows:

East, via Philadelphia and Reading railroad	703,010	tons.
Do Lehigh Valley railroad	11,845	"
West, via North Central railroad	501,258	"
Susquehanna and Trevorton railroad	4,003	"
Sold at the collieries	1,390	"

The tonnage on the Shamokin division of the Northern Central railroad in 1874, was—

Anthracite	581,377	tons.
Used by the company	2,346	"
Bituminous	21,995	"
Total	605,718	"

The foregoing is the quantity of coal mined and sent to market from Northumberland county, in the year 1874 and in 1873, by the different operators in that region.—*Miners' Journal.*

REQUIREMENTS OF THE MINE VENTILATION ACT OF MARCH 3, 1870.

Persons in charge of Mines are required to furnish me his answers to the following questions:

In mining law.	QUESTIONS.
SEC. 1.	1. Have you intelligent maps of your mines and workings for inspector's use, as required by law?
	2. Have you furnished statements of mining progress and improvements to the inspector?
	3. Have you abandoned any lift or level in your mines without due notice to inspector of such act?
SEC. 2.	4. Have you neglected to furnish the necessary information on the condition of your mines to the inspector, being requested to do so?
SEC. 3.	5. Have you two safety inlets and outlets for ingress and egress always available in case of accident, to secure the safety of miners?
	6. Have you unfinished inlets or outlets, or air-courses not heretofore completed, or in progress of completion?
	7. Have intervening lands prevented the execution of safety roads in your mines, when the safety of miner's lives may be involved?
SEC. 6.	8. Have you a suitable place where miners may change dress and wash in if required?
SEC. 7.	9. Have you an adequate amount of ventilation circulating in splits in each working district of your mine, as required by law?
	10. What mode or apparatus do you use to produce ventilation in your mines in summer and winter?
SEC. 8.	11. Have you a competent practical boss miner and firemen who do their duty to your miners and mines properly?
SEC. 9.	12. Have you to use safety lamps—in what condition kept, and if kept locked for better safety?
	13. Does your mines generate noxious gases?
	14. Do you need bore holes in certain places to protect miners from the dangers of lodgement water or gas?
SEC. 10.	15. Have you in use, or need of speaking tubes, in shaft or slope, for better safety of men?
	16. Have you secured your drums by brakes, horns and flanges, with proper machinery attached, to keep the ropes in safe position?
	17. Have you employed persons under twelve years of age to work in your mines?
SEC. 11.	18. Have you provided careful, trustworthy, competent and intelligent engineers and firemen to handle your engines and machinery with care?
	19. Have you permitted persons, not engineers in good practice, to meddle with engines and machinery in the place of competent engineers?
SEC. 12.	20. Have you neglected to notify inspector and coroner in cases of death or accidents to your miners or hands?
SEC. 13.	21. Have you had your boilers examined, as required by law, by competent persons, and report of their condition recorded?
	22. Have you wholly secured all dangerous places about your establishment to prevent accidents?

SEC. 14. 23. Have you furnished intelligent maps and plans, showing the situation of buildings, roads, streams, and how the same are secured from danger?

24. Have you ascertained the complement of air traversing gangway, and reported the same monthly?

INSPECTOR'S REQUIREMENTS.

1. Have you sufficient covers on cages or carriages, if in shaft, to secure men from injury or death?
2. Have you a spreader chain on crosshead attached to slope and shaft ropes sufficiently safe?
3. Have you safety catches in use? If so, have you proved them to be secure and good?
4. Have you good ropes or chains in use and adequate brake power to command them in case of accident to machinery?
5. Have you aircourses of sufficient section area to admit of sufficient ventilation?
6. Do you permit persons to ride on loaded wagons or cages out of your mines when traveling roads are available?
7. Do you permit more than (10) ten persons to ascend and descend on cage or wagon in slope or shaft at any time?
8. Do you measure the quantity and motion of air in face of gangways weekly and record the same?
9. Do you, as manager or operator, understand your duty to your men in case of death or injury?
10. Have you ascertained all dangerous places from caving in of mines, and fenced the same securely?
11. Do you fully understand the meaning of the Mining Act of 1870, and the penalties it imposes for neglect or failures to comply; and further the right of action by the heirs of any person that may lose their lives thereby as provided by law?
12. Have you prescribed your own rules and regulations for the government of your mines, and posted the same rules and regulations in conspicuous places, in and about the colliery, that all your men may fully understand your instructions and mode of government of the same and carry the same into effect; or do you permit unskillful persons to work where gases are evolved, where, by their ignorant acts, they may endanger the lives of your men and property?
13. Have you employed or entrusted any persons, other than intelligent and practical persons, to do duty as top and bottom men in your slope or shaft, and whom you know will take an interest in doing justice to your property and the safety of men, and enforce the rules and duties prescribed for them?
14. Have you discharged reckless or incompetent persons from responsible stations, knowing them to be such, and again restored them to places where their acts may endanger the safety of men and property?
15. Are you satisfied that your mines are properly managed for the security of your men and your own interest under the present system, or does it require some improvement and time to effect the desired and benefitted change.

——— ——— *Superintendent.*

——— ——— *Boss Miner.*

DEAR SIR:—I hereby notify you to comply with the requirements of the mining law, passed and approved the third day of March, A. D. 1870, and

especially in all things that are herein marked deficient, or consider yourself open and subject to the operations of the law itself, as approved for in many sections, but particularly in sections five and twenty-four.

Ventilation Report.

For the month ending.....187

Name and location of colliery.....

Operator's name. Superintendent's name. Mine boss' name.

....

To ..... Inspector of ..... District:

Sir —In conformity with the provisions of the eighth section of the act of Assembly, entitled "An Act providing for the health and safety of persons employed in coal mines, approved the 3d day of March, A. D. 1870," I herewith report measurements of the quantum of air supplied for ventilating each panel, district and gangway, tested weekly by instruments; also the temperature outside and inside the mine.

How ventilation is produced?

Deg.		Deg.	Deg. diff.
.....	Outside temperature 1st week.	.....Inside temperature 1st week.	.....
.....	" " 2d "	..... " " 2d "	.....
.....	" " 3d "	..... " " 3d "	.....
.....	" " 4th "	..... " " 4th "	.....
.....	Main temperature for the mo.	.....Main temperature for the mo.	.....

Districts and locations measured.	Days of month.....	Cubic feet of air in incast.....	Cubic feet of air in outcast at surface.	Cubic feet of air in 1st 100 yards east gangway.....	Cubic feet of air in face of east gangway.....	Cubic feet of air in 1st 100 yards west gangway.....	Cubic feet of air in face of west gangway.....	Cubic feet of air in east tunnel.....	Cubic feet of air in west tunnel.....	Cubic feet of air in 3d gangway face.	Cubic feet of air in 4th gangway face.	Cubic feet of air in 5th gangway.....	Cubic feet of air in 6th gangway.....	Average cubic feet of air in working breasts.....
Weekly dates of measurement.	1 8 15 22													
Monthly average in cubic feet.														
No. of hands employed in each district.....														

Sort of gas generated.....

Accidents, their cause and character, with name, age and employment of persons; if married, the number in family.

Note.

Coal tonnage of Schuylkill county collieries in the year 1873 *and* 1874, *and names of Collieries, their location, operators and land-owners, for the year closing December* 31, *A. D.* 1874

NAMES OF COLLIERIES.	Location of Collieries.	Name of Operators.	Name of Landowners.	Tonnage of 1874.	Tonnage of 1873.
Beechwood	Mount Laffee	P. R. C. and I. Company	P. R. C. and I. Company		80,103
Pine Forest	St. Clair	G. W. Snyder	do		59,003
Rainbow	do	P. R. C. and I. Company	do		47,300
Pyne	Swatara	Claud White	do		33,981
Live Oak	Mine Hill Gap	P. R. C. and I. Company	do		20,448
Kear	do	do	do		39,848
Pine Knot	Greenberry Valley	do	do		28,936
Otto	Branchdale	do	do		69,845
East Franklin	Upper Rauch Creek	do	do		46,770
Keystone	Locust Dale	do	do		40,216
E. Big Mine Run	E. Big Mine Run	E. Bast	do		66,869
Glendower	Glen Carbon	P. R. C. and I. Company	do		32,907
Thomaston	Heckscherville	do	do		33,777
Forestville	Forestville	D. Hock & Company	do		34,177
Tunnel	Ashland	P. R. C. and I. Company	do		39,566
Phœnix, No. 2	Phœnix Park	D. Hock & Company	do		7,513
Indian Ridge	Shenandoah	P. R. C. and I. Company	do		102,988
Plank Ridge	do	Grant & Lee	do		128,386
Preston, No. 1	Girardsville	P. R. C. and I. Company	do		17,029
Preston, No. 2	do	do	do		34,269
Preston, Nos. 3 and 4	do	do	do		34,875
Boston Run	Gilberton		Gilbert and others		54,318
N. Mahanoy	Mahanoy City	Hill & Harris	P. R. C. and I. Company		54,333
Hillside	do	G. W. Pomroy	do		4,370
Knickerbocker	Maple Dale	Knickerbocker Coal Co	do		29,404
Mahanoy City	Mahanoy City		do		94,808
Richardson	Glen Carbon	Richardson & Company	do		14,000
Honey Brook, 4 slopes	Honey Brook	Honey Brook Coal Co	Honey Brook Coal Co		318,658
Anthracite	Combola		P. R. C. and I. Company		
Ellangowen	Maple Dale		do		76,614
Buckville	Buckville	P. R. C. and I. Company	do		6,444
Wabash	do	do	do		4,920
Colorado	Girardsville, East	Phila. Coal Company	Phila. Coal Company	45,557	149,295
Lehigh, No. 3	Shenandoah, West	do	do	97,504	65,690
Lost Creek	do West	do	do	137,365	88,295
Lower Rauch Creek	Lower Rauch Creek	Miller, Graff & Company			117,696

COAL TONNAGE OF SCHUYLKILL COUNTY—*Continued*

NAMES OF COLLIERIES.	Location of Collieries.	Name of Operators.	Name of Landowners.	Tonnage of 1874.	Tonnage of 1873.
West End	Donaldson	Miller, Hock & Co	Miller, Hock & Co		77,730
Colket	do	Levi Miller & Co			75,476
Hickory Shaft	Hickory Coal Company	Wm. Draper & Co	P. R. C. and I. Company		122,033
Draper	Gilberton	do	Gilbert and others		99,030
Girardsville	Girardsville	Agard & Moody	P. R. C. and I. Company		113,827
M'Michael	do	do	do		49,038
Wm. Penn Shaft	Shenandoah, West		Gilbert and others		149,727
Koh-i-noor	do	Heckscher & Co	do		107,835
Thomas	do	Thomas Coal Company			99,786
Cuyler	Raven Run	Heaton Brothers			94,068
Eagle, No. 1	St. Clair	G. W. John & Bro			84,627
Tunnel Ridge	Mahanoy City	G. W. Cole			84,421
West Lehigh	Shenandoah	Hess & Brenizer			84,255
Brookside	Tower City	G. S. Repplier			84,227
	Mahanoy City	Focht & Whitaker			80,959
Copley	do	Lentz & Bowman			79,696
St. Nicholas	St. Nicholas	St. Nicholas Coal Company,			78,655
Oakdale	Glen Carbon	Richardson			74,546
Eagle Hill	Eagle Hill	J. C. Oliver			74,044
M'Neil, No. 4	Mapledale	M'Neil's trustees			76,634
Gilberton	Gilberton	Gilbert & Co			69,155
Primrose	Mahanoy City	G. Nevils & Co			67,212
Lawrence	Frackville	J. Lawrence & Co			64,397
Turkey Run	Shenandoah	Brenzel & Co			84,255
	Donaldson	Owen, Eckel & Colket			62,825
Furnace	Gilberton	Atkins & Bro			58,205
Bear Run	St. Nicholas	G. Wiggan & Co			
New Boston	New Boston	Lehigh Coal Company	Lehigh Coal Company	86,000	
Girard Mammoth	Raven Run	J. Donaldson			50,709
M'Neil, No. 2	Mapledale	M'Neil Coal Company			50,717
M'Neil, No. 3	do	do			38,688
Kalmia	Kalmia	Philips & Sheafer			50,625
Suffolk	St. Nicholas	Suffolk Coal Company			43,728
Greenwood, No. 2	Tamaqua, East	E. Borda			41,685
Newkirk	Newkirk	Fry & Shoemaker			40,097
Glendon	Mahanoy City	J. B. Boylen			39,380
Taylorville	Taylorville	T. H. Shallenberg			36,475

Ravensdale	Ravensdale	W. H. Starr		36,389
Stanton	Gilberton	Maize & Miller		77,000
Anchor	Heckscherville	J. Wadlinger	P. R. C. and I. Company	34,628
Girard	Girardsville	T. Garretson		33,208
Big Mine Run, West	Big Mine Run	Taylor & Lindsy	P. R. C. and I. Company	32,806
Diamond	Forestville	J. Wadlinger	do	30,600
Bear Ridge	Gilberton	Bear Ridge Coal Company,		29,506
Alaska	Tamaqua	Alaska Coal Company		28,821
Shenandoah, West	Shenandoah	Maize & Lewis		28,432
Cambrian	Ashland	Atkins & Co		25,898
Excelsior	do	J. Cleaver		20,747
Oak Hollow	Mahanoy	Gorman & Co		19,091
Malvern	do	A. Hunt		17,682
Monitor	Wadesville	J. Dennings		15,179
Tracy	East Delaware	C. Berluchy		8,236
Ellsworth	New Castle	J. R. Davis		7,754
Mammoth	do	J. Dennings		5,722
Peach Mountain	Tuscarora	B. Rowbottam		7,143
Coaldale	Coaldale	Lehigh Navigation Coal Co.,		60,500
Lambert	Combola	Sener & Co		6,118
Bull Run	Tamaqua, East	Lehigh Navigation Coal Co.,		5,969
Kentucky	Tuscarora	Shall & Donahoe		5,908
Manchester	Wadesville	Alton & Co		5,352
Elmwood	Mahanoy City	Lee & Wren		3,998
Jackson	St. Clair	A. Jackson		3,495
Reevesdale	Reevesdale	P. R. C. and I. Company	P. R. C. and I. Company	2,662
Beaver Run	Mahanoy City	Bowman		2,554
Sharp Mountain	Pottsville	J. Wood		1,710
York Farm	do	Llewellyn		1,600
York Slope	do	Job Rich		1,600
West Shenandoah	Shenandoah	Brenzle & Co		6,059
Tamaqua	Tamaqua	Mackey & Co	P. R. C. and I. Company	16,834
Silver Creek	Silver Creek	Williams & Co	do	12,963
Ledger Vein	do	Winelack & Co	do	11,175
Sunnyside	Mahanoy City	Morgan & Co		9,801
Tremont	Tremont	Fisher & Co	P. R. C. and I. Company	3,194
Feeder Dam	Port Carbon	Idle	do	10,539
Sunnyside			do	4,716
Sundry screenings				19,316

A STATEMENT *of the Power, Capacity and Force in use at the Collieries of the First District in the year* 1874.

NAME OF COLLIERIES.	Slopes.....	Shafts.....	Drifts.....	Breasts.....	Engines.....	Horse power.	Fans.....	Power.....	Pumps.....	Power.....	Boilers.....	Men.....	Boys.....	Total hands..	Mules.....	Wagons.....
Anchor	2	....	....	14	9	240	1	40	2	80	20	142	42	184	15	25
Hickory shaft	....	1	....	65	7	786	1	40	2	Cages,	21	337	146	483	31	100
New Kirk	2	....	....	13	7	270	1	20	2	100	17	101	43	144	12	50
Alaska, No. 2	....	....	2	.....	4	140	....	.....	....	.....	7	90	21	115	18	53
Eagle Hill	2	1	....	12	8	365	1	20	2	160	15	100	41	141	7	50
Glentworth	1	....	.....	.....	7	245	1	20	1	50	8	93	27	120	9	30
Coaldale	3	....	1	22	7	695	1	10	1	500	17	183	63	246	37	150
W. L	....	....	2	4	2	50	....	.....	....	.....	4	26	12	38	8	17
Beechwood	1	....	....	35	5	314	1	20	2	200	12	317	80	397	27	94
Oakdale	1	2	....	53	8	580	1	20	2	350	15	139	62	201	21	88
Peach Mountain	1	....	....	5	2	70	....	.....	1	10	3	32	7	39	3	11
Ellsworth	3	....	....	6	2	45	....	.....	1	10	4	34	20	54	3	8
Black Heath	....	....	1	5	.....	.....	.....	.....	.....	.....	.....	7	2	9	1	3
Pine Forest	....	1	2	17	8	855	1	25	2	300	20	149	81	230	22	70
Monitor	1	....	....	.....	3	66	1	6	1	20	5	20	10	30	6	10
Diamond	....	....	1	5	1	10	....	.....	.....	.....	1	25	11	36	2	12
Thomaston	2	....	....	32	6	380	1	40	2	150	26	150	50	200	16	30
Glendower	2	....	....	14	8	975	2	40	2	350	23	150	50	200	22	52
Mine Hill Gap	3	....	....	66	8	1,280	1	25	2	500	26	219	108	327	21	50
Richardson	2	....	....	.....	5	680	1	20	2	500	18	.....	.....	.....	.....	.....
Sharp Mountain	1	....	1	.....	.....	.....	.....	.....	1	6	2	6	2	8	1	3
Eagle	1	....	2	17	5	300	1	20	1	60	7	93	40	133	9	125
Baltimore	1	....	....	14	5	165	1	20	1	60	8	94	47	141	12	60
Lambert	1	....	....	20	4	140	1	10	1	50	9	58	19	77	7	32
Shoefly	1	....	....	2	2	28	....	.....	1	10	2	10	9	19	2	6
Palmer	....	....	1	.....	.....	.....	.....	.....	.....	.....	.....	3	6	9	2	4
York Farm	1	....	....	.....	1	20	....	.....	1	10	3	6	2	8	1	4
Forestville	1	....	1	.....	4	85	1	10	1	40	8	141	36	177	10	17
Little Tracy	1	....	....	.....	.....	.....	....	.....	....	.....	.....	2	6	8	2	2
Sharp Mountain	1	....	....	.....	2	25	....	.....	....	.....	1	6	3	9	3	4
Buck Valley	1	....	1	.....	.....	.....	....	.....	....	.....	.....	6	4	10	3	4
Faust	1	....	....	.....	.....	.....	....	.....	....	.....	.....	4	3	7	2	2

Diamond	1	....	....	18	6	412	1	20	1	285	10	84	21	105	6	25
Taylorsville	1	....	....	13	7	1,210	1	40	1	500	12	94	28	122	10	20
Bull Run	1	....	1	37	7	440	1	20	1	60	12	214	60	274	17	100
West Pine Knot	2	....	....	....	2	590	....	....	1	500	12	44	.....	44	10	50
St. Clair	.....	....	1	11	1	10	.....	.....	.....	.....	2	17	8	25	3	9
Ravensdale	1	....	....	.....	4	160	1	20	1	60	10	82	29	111	11	40
Bullock	....	....	1	.....	.....	.....	.....	.....	.....	.....	.....	10	6	16	3	7
Kentucky	1	....	....	.....	5	205	1	20	1	40	11	16	9	25	4	20
Delaware shaft	1	2	....	Sinki'g	6	740	1	20	2	80	22	80	.....	80	2	.....
Seven small collieries	....	....	10	.....	.....	.....	.....	.....	.....	.....	.....	40	20	60	10	40
Forty-eight collieries of all classes	44	7	28	500	175	11,856	25	537	42	5,075	393	3,424	1,214	4,638	411	1,577

A STATEMENT *of the Power, Capacity and Names of the respective Collieries in the Second District in* 1874.

NAME OF COLLIERIES.	Slopes	Shafts	Drifts	Breasts	Engines	Power	Fans	Power	Pumps	Power	Boilers	Men	Boys	Total	Mules	Mine wagons
Shenandoah	2	....	1	37	9	338	1	20	1	60	11	176	45	221	34	125
Focht & Whittaker	....	1	....	23	3	100	1	20	1	50	4	104	14	118	18	52
Wood & Oliver	....	....	1	7	1	12	.....	.....	.....	.....	3	28	5	33	2	20
Mahanoy City	2	.....	.....	29	6	310	1	20	1	60	12	219	90	309	17	50
Peach Mountain	....	....	1	.....	1	10	.....	.....	.....	.....	1	5	.....	5	1	5
Diamond	1	.....	.....	9	2	55	.....	.....	1	10	4	46	10	56	8	10
Elmwood	2	.....	.....	19	5	364	1	20	1	20	10	108	35	143	11	19
Tunnel	1	....	1	25	9	394	1	20	1	60	15	162	30	192	22	47
St. Nichols	2	.....	.....	26	7	268	1	20	1	60	16	137	30	167	24	76
Suffolk	1	....	2	4	5	184	.....	.....	1	60	12	92	60	152	16	60
Gilberton	2	.....	.....	24	5	184	1	20	1	60	12	100	60	160	12	50
Draper	2	.....	.....	22	9	345	1	20	1	60	15	150	58	208	24	80
New Boston	3	.....	.....	35	8	862	2	30	2	250	12	260	42	302	25	94
Big Mine Run	.....	.....	5	28	5	190	1	20	.....	.....	13	124	54	174	29	120
Union	1	....	1	20	5	175	.....	.....	.....	.....	9	137	33	170	30	56
Primrose	1	....	1	42	6	180	1	20	1	50	8	110	42	152	14	50
Glendon	1	.....	.....	15	4	95	1	20	1	30	9	70	25	95	18	48
Lawrence	1	....	1	12	7	370	1	20	1	50	12	125	50	175	16	75
Keystone	2	.....	.....	25	8	775	1	40	1	500	19	113	50	163	18	33
Girard	2	.....	.....	28	8	469	1	40	1	60	22	163	25	188	20	52
West Shenandoah	1	.....	.....	20	4	172	1	20	1	60	4	55	23	78	10	28
P. R. C. & I. Co	1	New	.....	.....	.....	.....	.....	.....	.....	.....	10	20	.....	20	.....	20
Plank Ridge	4	1	....	39	8	264	1	30	1	60	17	300	58	358	23	120
Turkey Run	....	1	....	42	8	428	1	30	1	200	18	342	58	400	19	100
Honey Brook	5	.....	.....	124	23	.....	2	60	11	1,160	60	568	236	804	76	200
Girardsville	1	....	5	58	8	520	1	20	1	200	19	310	141	451	41	150
Stanton	1	.....	.....	18	7	145	1	20	1	40	12	150	40	190	10	41
Preston No. 1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Preston No. 2	1	.....	.....	.....	5	320	1	20	.....	.....	12	100	80	180	.....	.....
Preston No. 3	1	.....	.....	.....	7	390	1	30	.....	.....	17	100	127	227	.....	.....
Preston No. 4	.....	....	1	.....	1	20	.....	.....	.....	.....	2	.....	.....	.....	.....	.....
Big Mine Run	3	.....	.....	38	7	920	1	25	3	650	25	200	40	240	18	54
Tunnel	2	.....	.....	10	9	945	2	60	2	650	32	100	50	150	12	60

Locust Run	1			10	4	270	1	20	2	400	24	160	42	202	18	45
Locustdale	2			16	8	1,005	1	30	1	500	18	169	39	208	15	43
Continental	1		1	16	7	269	1	20	3	200	17	100	28	128	15	30
Malvern	1		1	17	2	80			1	40	7	80	22	102	10	60
Bear Run	1			18	5	225	1	20	2	40	10	116	25	141	15	50
Thomas	2			20	9	550	1	20	1	60	16	285	48	333	16	60
Wm. Penn	1	1		66	7	240	1	20	1	60	16	250	60	310	16	150
Girard Mammoth	1		2	16	7	231	1	20	1	16	16	121	52	173	16	84
Delano	1			12	4	247	1	20	2	60	9	60	16	76	8	30
Turkey Run	1			53	4	120	1	20	1	40	5	250	50	300	23	125
Colorado	1		3	20	2	200	1	40	1	50	10	60	25	85	12	130
Centennial	1			20	5	340	1	20	3	150	14	170	35	205	21	50
Copley			5	21	2	120			1	30	4	187	30	217	20	83
Ellengowen		1	2	34	5	160	1	20	1	50	6	264	85	349	36	110
Knickerbocker	1		1	5	6	120	1	20	1	40	9	100	29	129	14	70
Yatesville	2			28			1	20			10					
Furnace			1	4	2	25					2	89	29	118	13	37
Boston Run	1			22	5	220			2	60	15	163	38	201	20	54
Lost Creek	2			32	10	330	1	25	2	100	16	260	40	300	16	70
Lehigh, No. 3	1			7	7	256	1	20	2	100	10	168	38	206	10	50
Philadelphia Coal Company	1				1	40					4	20		20		
Koh-i-noor	1	1		65	10	570	1	40	Cage		11	345	75	420	25	100
Swole's Drift			1													
Bear Ridge	1			29	8	575	1	20	2	200	20	100	33	133	11	75
B. R. Tunnel			1	7	1	40					2	23	6	29	4	26
Hazledell	2			10	4	300	1	20	1	60	10	100	38	138	22	50
Buck Mountain Tunnel			1	13	2	60					2	60	28	88	6	30
Beaver Run			1	7	1	40					2	23	6	29	4	26
Cuyler			2	29	6	160	1	20			10	160	25	185	26	60
Mammoth											10					
North Mahanoy	1			41	5	146	1	20	1	40	6	155	25	180	15	52
Hillside	1			5	2	50			1	20	4	58	18	76	9	26
Trenton	1			5	4	140			1	20	4	20	10	30	6	20
	76	7	52	1,411	356	1,500	59	1,500	76	8,860	784	8,695	2,367	11,062	989	3,614

A STATEMENT *of the Power, Capacity and Names of the respective Collieries in the Third District, in the year* 1874.

NAME OF COLLIERIES.	Slope	Shaft	Drift	Breasts	Engines	Horse power	Fans	Power	Pumps	Power	Boilers	Men	Boys	Total employed,	Mules	Wagons
Marshall	1	....	....	2	1	8	....	.....	1	8	3	13	2	15	2	5
Trevorton	3	....	3	45	10	365	1	20	2	40	25	265	111	376	45	156
Luke Fidler	1	1	4	42	5	180	1	25	1	40	8	240	68	308	12	45
Henry Clay	1	....	3	18	2	70	1	20	1	40	6	144	45	189	29	180
Buck Ridge	1	...	9	12	3	140	....	.....	1	40	8	109	30	139	33	150
Enterprise	1	....	....	21	4	330	1	20	1	40	13	150	33	183	15	60
Reliance	1	....	....	6	4	245	1	20	1	40	11	166	84	250	23	84
Big Mountain	....	....	6	46	3	70	1	20	....	.....	4	150	60	210	20	60
Mariam	2	....	....	27	4	360	1	25	4	200	20	192	45	237	20	60
Monitor	3	....	....	27	7	325	1	20	1	60	18	150	45	195	18	55
Lancaster	....	....	4	2	1	15	....	.....	....	.....	1	30	10	40	5	25
Locust Gap	2	....	....	26	5	270	1	20	1	60	12	192	45	237	11	35
Locust Spring	2	....	....	20	4	170	1	21	1	60	11	81	40	121	10	30
Cameron	2	....	4	27	4	365	1	20	2	50	41	322	95	417	57	120
Ben Franklin	....	....	2	21	1	25	....	.....	....	.....	3	71	47	118	21	45
Morton	....	....	2	9	1	15	....	.....	....	.....	1	31	14	45	6	17
Alaska	....	1	....	6	6	375	....	.....	1	60	10	56	21	77	10	30
George Fales	1	....	...	29	3	155	....	.....	1	60	6	60	25	85	10	38
Brady	....	....	4	25	2	50	....	.....	....	.....	6	80	26	106	18	50
Excelsior	....	....	6	45	1	65	....	.....	....	.....	6	132	45	177	26	140
Coal Ridge	1	....	....	18	3	100	....	.....	1	60	16	26	.....	26	12	26
Black Diamond	....	....	2	8	2	40	....	.....	....	.....	2	34	18	52	5	25
Burnside	2	....	....	26	4	190	1	12	1	60	11	100	30	130	28	87
Bear Valley	....	....	2	15	1	30	....	.....	....	.....	2	50	20	70	10	50
Hickory Swamp	1	....	1	23	1	120	1	20	1	40	7	209	76	285	33	175
Hickory Ridge	....	....	1	.....	.....	.....	.....	.....	.....	.....	.....	68	15	83	6	21
Bear Valley Shaft	1	....	....	.....	2	150	....	.....	1	60	10	16	.....	16	.....	.....
Franklin	....	....	1	4	1	8	....	.....	....	.....	1	26	15	41	.....	.....
Royal Oak	....	....	1	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	3	1	3
Brookside	1	....	....	42	4	190	1	25	1	60	18	207	36	243	10	100
Colket	1	....	....	12	7	450	2	50	4	240	21	110	79	189	26	60

Eureka	....	....	1	.....	.....	.....	.....	.....	....	.....	.....	3	.....	3	1	2
Kalmia	....	....	1	12	2	55	1	15	....	.....	4	100	50	150	16	55
Lower Rouch Creek	2	....	....	38	7	305	2	30	6	120	30	197	60	257	55	105
Helfenstine	1	....	....	.....	5	165	1	20	2	60	5	42	20	62	2	31
Big Run Gap	....	....	2	.....	.....	.....	.....	.....	.....	.....	.....	14	.....	14	9	18
Forestville	1	....	....	12	4	145	1	20	1	50	8	81	38	119	11	38
Phœnix, No. 2	1	....	....	20	8	145	1	20	3	85	13	90	47	137	10	40
Otto	2	....	....	.....	14	540	2	40	4	300	16	220	50	270	25	80
Pyne	1	....	....	16	7	260	1	20	3	90	20	200	50	250	16	40
Middle Creek	....	1	....	3	21	120	1	20	2	1,000	10	48	.....	48	10	20
Franklin, East	1	....	....	10	5	330	1	35	5	200	21	49	38	87	10	60
Lincoln	....	....	1	26	1	40	....	.....	....	.....	3	140	35	175	20	45
Rauch Gap	....	....	1	.....	.....	.....	....	.....	....	.....	.....	5	2	7	1	3
Bear Valley Drift	....	....	1	.....	.....	.....	....	.....	....	.....	.....	5	2	7	1	3
Red Mountain, (idle)	....	....	....	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
North Side	....	....	1	3	.....	.....	....	.....	....	.....	.....	12	.....	12	3	5
Forty-eight collieries	42	5	60	824	182	10,445	31	644	64	4,553	514	5,666	1,865	7,531	911	2,579

NAMES OF THE POTTSVILLE DISTRICT COLLIERIES, *their number and county to which they belong.*

No.	Name.	County.	No.	Name.	County.
1....	Anchor.....	Schuylkill.	23...	Eagle	Schuylkill.
2....	Hickory Shaft.....	.....do.	24...	Lambert.....	.....do.
3....	New Kirk.....	.....do.	25...	Baltimore.....	.....do.
4....	Alaska.....	.....do.	26...	Shoefly.....	.....do.
5....	Eagle Hill	.....do.	27...	Palmer.....	.....do.
6....	Glentworth.....	.....do.	28...	York Slope.....	.....do.
7....	Buckville.....	.....do.	29...	Forestville	.....do.
8....	Coaldale	.....do.	30...	Little Tracy.....	.....do.
9....	Winlack	.....do.	31...	Sharp Mount. Slope.	.....do.
10....	Beechwood.....	..... do.	32...	Black Valley.....	.....do.
11....	Oakdale.....	.....do.	33...	Faust.....	.....do.
12....	Peach Mountain	.....do.	34...	Diamond.....	.....do.
13....	Ellsworth.....	.....do.	35...	Taylorville.....	.....do.
14....	Black Heath	.....do.	36...	Bull Run.....	.....do.
15....	Pine Forest	.....do.	37...	West Pine Knot.....	.....do.
16....	Monitor.....	.....do.	38...	St. Clair Drift.....	.....do.
17....	Diamond.....	.....do.	39...	Ravensdale.....	.....do.
18....	Thomaston	.....do.	40...	Bullock.....	..... do.
19....	Glendower.....	.....do.	41...	Kentucky.....	.....do.
20....	Mine Hill Gap	.....do.	42...	Landsale.....	.....do.
21....	Richardson.....	.....do.	.....	6 Landsale collieries.	
22....	Sharp Mountain.....	.....do.	.....	Total, 48 active operating collieries.	

REPORT

OF THE

INSPECTOR OF MINES FOR POTTSVILLE DISTRICT, EMBRACING THE COLLIERIES SOUTH OF BROAD MOUNTAIN AND EAST OF THE WEST BRANCH OF THE SCHUYLKILL RIVER, IN SCHUYLKILL COUNTY.

To His Excellency, JOHN F. HARTRANFT,

Governor of the Commonwealth of Pennsylvania:

SIR:—In conformity with the requirements of an act of Assembly of the 3d of March, 1870, &c., I have the honor to herewith submit my annual report of all matter of information respecting the condition and safety of mines and the miners in the collieries of the district, showing that 48 collieries have been in operation during the year, employing 4,662 persons, and using 157 steam engines, 22 fans, with 346 steam boilers; showing that 33 persons lost their lives, and that 100 others were injured; that one life was lost for each 141 persons employed, and one person was injured for each 46 persons employed. This exhibit, though unsatisfactory, nevertheless is too true, and recorded as accidental, as shown by the verdicts of inquests in such cases. Other matter of interest will be found detailed in this report under its proper heads. Conscious of having discharged my duty to the best of my ability in the premises, I have the honor to be, with great respect,

Your Excellency's obedient servant,

FRANK SCHMELTZER,

Inspector of Mines.

POTTSVILLE DISTRICT.

Names of persons who were killed and those who died subsequently of injuries in and about the collieries of the district, and the number of widows and orphans left by the deceased during the year ending December 31, A. D. 1874.

DATE.	Names of Persons Killed.	Names of Collieries.	Widows....	Orphans....	Remarks and Character of the Casualties.
Jan. 4,	Thomas Morris	Anchor	1	4	Died; caused by breaking of slope chain, Nov. 30, 1873.
22,	John Gallagher	Tunnel, No. 8	1	3	Killed by a fall of gangway coal.
22,	Thomas Jeffries	Tunnel, No. 8	....	....	Killed by the same accident.
Mar. 6,	Edward Smith	Bull Run	1	5	Killed by a fall of coal.
16,	Patrick Mangan, boy	Eagle	....	....	Killed; being kicked on the head by a mule.
18,	Stephen Harris	Taylorville	1	5	Killed; he fell off the slope truck while riding down.
21,	Archibald M'Michael	Phœnix, No. 3	1	2	Killed; the rope being frozen to the track, the descending wagon snapped the rope, killing the three miners.
21,	John M'Hale	Phœnix, No. 3	....	....	
21,	John R. Davis, Jr.	Phœnix, No. 3	....	....	
April 14,	William Reed	Anchor	1	5	Killed by an explosion of fire-damp.
25,	Jacob Honicker	Eagle	1	6	Killed by a fall of coal.
27,	Henry Collins	L. Nav. Mines	....	....	Killed by falling off a breaker building.
May 2,	John Malin	Taylorville	....	....	Died; mortally crushed by fall of platform.
20,	Henry Williams	Hickory Shaft	....	....	Died of injuries he received in the mine.
29,	Thomas Campfield	Beechwood	1	4	Died from effects of a cold contracted in the mine.
June 1,	Ebenezer Sheppard	Tunnel, No. 8	....	....	Killed by an explosion of fire-damp.
8,	Thomas Mooney	Ravendale	1	6	Died; being mortally burned by fire-damp.
11,	Edwin Holvey	Tamaqua	....	....	Killed by an accident in the mine.
23,	James Walsh	Beechwood	1	7	Killed by an explosion of fire-damp.
23,	William Kelly	Beechwood	1	6	Killed by the same accident.
23,	Thomas Owens, boy	Beechwood	....	....	Killed by the same accident.
July 22,	James Clarey	Richardson	....	....	Killed; being thrown off the slope cage in its descent.
27,	Edward M'Cormick, boy	Anchor	....	....	Killed by an explosion of fire-damp.
27,	Thomas Edwards, boy	Anchor	....	....	Killed by the same accident.
Sept. 20,	Andrew Underwood	Anchor	....	....	Died; mortally burned by fire-damp on the 15th inst.
26,	Archibald Rush	Tunnel, No. 8	....	....	Killed; he was crushed to death by a log.
26,	Edward Brophy	Anchor	....	....	Died from being burned by an explosion of fire-damp.
Oct. 3,	Patrick Loy	Lehigh, No. 4	....	....	Killed; run over by gangway wagons.
23,	M. Brannan, boy	Buckville	....	....	Killed on the plane; run over by wagons.

Nov.	2,	Rosser Rotherick	Buckville	....	....	Killed by an explosion of fire-damp.
	10,	John Curran	Mine Hill Gap	1	8	Killed by an explosion of fire-damp.
	10,	Lewis Burns, single	Mine Hill Gap	....	....	Killed by an explosion of fire-damp.
Dec.	1,	George Floude	P. R. C. and I Co's. Shafts	1	1	Killed accidentally by the cage frame.
	12,	Thomas Roan	New Philadelphia	1	3	Killed by a fall of rocks.
	12,	Hugh M'Tague	Coaldale	....	....	Killed; he fell into the breaker bin.

Thirty-five persons came to their death from the foregoing casualties, of this number seven died of injuries.

CHARACTER OF THE INJURIES RECAPITULATED.

4 persons were killed by falls of coal.
13....do.....do.....by explosions of fire-damp.
8....do.....do.....by falling down slopes, shafts, &c.
2....do.....do.....by being run over by wagons.
3....do.....do.....by sundry accidents.
1 person lost his life by being kicked by a mule.
1....do.....do.....by a fall of rocks.
1....do.....do.....by a fall of timber.
1....do.....do.....by the falling of a platform.
1....do.....do.....by falling off a breaker.

35 deaths, leaving —— widows, and —— orphans.

This exhibit of casualties is to be greatly regretted, owing to the great decrease in the number of collieries in the district, and the small number of hands employed, together with the decreased coal tonnage of the district in 1874.

In the year 1870 there were 68 active collieries in operation, which number are now reduced to prominent, and —— small landsale operations, affording employment to —— persons, while in the year 1870, there were —— persons employed in the district.

Most all these prominent operations are greatly reduced in their production of coal, and many others are idle or absolutely abandoned for the present.

POTTSVILLE DISTRICT CASUALTIES IN 1874.

Names of persons who were maimed or seriously injured in and about the mines of this district during the year ending December 31, A. D. 1874.

DATE.	Names of maimed persons.	Names of the collieries.	Remarks.
January 9	A miner	P. R. C. and I Company	Severely injured; he fell into an old opening.
10	John Roberts		Thumb cut off by a fall of coal.
10	Wm. Purcell	Anchor	Head crushed by a fall of props.
14	Domnick O'Donnell	Lehigh, No. 4	Hand broken by a fall of timber.
14	Thomas Brannan	Mine Hill Gap	Back severely injured by a fall of coal.
25	Stephen Jones	Anchor	Side severely injured by fall of a pulley.
February 28	12 others in district		Not officially reported.
March 7	James Stone	Beechwood	Head severely cut by a fall of coal.
21	Frank Morgan	Ravensdale	Head severely crushed by wagons.
April 14	George Jones	Anchor	Dangerously burned by fire-damp.
25	John Malin	Taylorville	Mortally injured by coal; he subsequently died.
25	Dan Codrington	Buckville	Leg broken by a fall of coal.
May 13	James Gallagher	Lehigh, No. 9	Severely burned by an explosion of gas.
15	Joseph Lockett	St. Clair Shaft	Fingers crushed by a fan.
20	Henry R. Davis	Anchor	Severely burned by an explosion of fire-damp.
27	Thomas Mooney	Ravendale	ditto ditto ditto.
June 2	John Day	Lehigh, No. 8	ditto ditto ditto.
2	John Thomas	ditto	ditto ditto ditto.
2	Charley Leary	Thomaston	Arm broken by a fall of rocks.
2	Ebenezer Sheppard	Coaldale	Mortally injured in the mine; subsequently died.
4	Jonas Smith	Ravendale	Severely burned by fire-damp.
4	Hugh Hogan	ditto	ditto ditto.
4	Thomas Kilbride	ditto	ditto ditto.
4	Lawrence Dalton	ditto	ditto ditto.
4	John Higgins	ditto	ditto ditto.
5	Thomas Dunn	ditto	Severely injured by a fall of coal.
5	James Hagerty	Forestville	Severely injured; run over by wagons.
8	Michael Dolan	Beechwood	Arm broken; he fell off a truck of timbers.
10	Charles Brannan	Anchor	Severely injured in the mine.
20	David Harris	ditto	Severely burned by an explosion of fire-damp.
22	David Smith	Beechwood	Hip dislocated by a fall of coal.
22	Patrick Donovan	ditto	Fingers cut off by a fall of coal.
23	Thomas Owens	ditto	Terribly burned by fire-damp; died next day.
23	Henry Waters	ditto	Severely injured by the concussion of explosion.

POTTSVILLE DISTRICT CASUALTIES—*Continued.*

DATE.	Names of maimed persons.	Names of collieries.	Remarks.
June 27	William Purcell	Mine Hill Gap	Severely burned by an explosion of fire-damp.
27	Jacob Symmit	....do	.....do.....do.....do.
July 14	Henry Kroll	Tamaqua	Severely crushed by a fall of coal.
24	John Lundy	Hickory Shaft	Head fractured by a blast.
27	John Brannan, (Rush)	Anchor	Severely burned by an explosion of fire-damp.
27	James Hagerty	....do	.....do.....do.....do.
27	John L. Evans	....do	.....do.....do.....do.
29	Patrick M'Laughlin	Bull Run	Thigh broken by a fall of coal.
August 8	Henry Mullin	Buckville	Severely crushed by a fall of coal.
21	Michael Brannan	Anchor	Severely burned by an explosion of fire-damp.
25	Patrick Delaney	Lehigh, No. 8	Head severely crushed by a fall of coal.
September 2	Patrick Madden	Diamond, No. 1	Severely burned by an explosion of fire-damp.
2	James Madden	....do	.....do.....do.....do.
11	Thomas Carl	....do	.....do.....do.....do.
11	Patrick Maguire	....do	.....do.....do.....do.
15	Andrew Underwood	Anchor	Mortally burned by an explosion of fire-damp; died.
15	Edward Fogarty	....do	Severely.....do.....do.....do.
25	Patrick Mullin	Eagle Hill	Leg broken by a fall of coal.
25	William Reese	....do	Severely crushed in riding up the slope.
27	William Rush	Forestville	Severely crushed by a blast.
30	Benjamin Lloyd	Anchor	Severely injured by falling into a chute.
30	7 injuries in district		Not officially reported here.
October 30	Patrick Durken	St. Clair Shaft	Head, ankle and body crushed by a fall of coal.
30	Joseph Taylor	....do	Foot cut; run over by wagons.
30	Peter Higgins	....do	Head and breast crushed by wagons.
30	Tobias Donnelly	Hickory Shaft	Severely burned by an explosion of fire-damp.
November 1	John Subline, boy	Beechwood	Foot crushed; run over by wagons.
5	John Atkins	....do	Dangerously crushed by a fall of coal.
5	Thomas Morgan, boy	....do	Dangerously crushed by a fall of a dumper.
5	Two miners	....do	Dangerously crushed by a fall of coal.
6	Domnick Jourdan	Hickory Shaft	Severely burned by an explosion of fire-damp.
8	Thomas Thomas	Beechwood	Thigh broken by a fall of coal.
8	Patrick Hughes	Mine Hill Gap	Severely burned by an explosion of fire-damp.
11	Jacob Frantzs	Eagle	Thigh broken and body crushed by a fall of coal.
13	Thomas E. Waters	Hickory Shaft	Severely burned by an explosion of fire-damp.
20	George Williamson	Thomaston	Severely crushed by wagons and timber.
20	John Ryan, (Crogan)	Richardson	Severely burned by an explosion of fire-damp.

23	James M'Donnell	Kentucky	Severely injured by a fall of coal.
26	Bernard Mulligan	Eagle Hill	Leg broken by a fall of coal.
December 1	Richard Holman	Minersville	Thigh broken by the sweep pole of a gin.
11	John Beadle	Hickory Shaft	Severely burned by an explosion of fire-damp.
11	John Durken	do	do do do.
11	Thomas O'Neil	do	do do do.
11	John Purcell	do	do do do.
11	William Botham	do	do do do.
11	William Morgan, boy	do	do do do.
11	John Moyer	do	do do do.

CHARACTER OF THE INJURIES.

21 persons were maimed and injured by fall of coal.
1.....do.....do.....by fall of rocks.
38.....do.....do.....by explosions of fire-damp.
2.....do.....do.....by explosions of blasts.
2.....do.....do.....by falls into slopes, &c.
5.....do.....do.....by being crushed by wagons.
4.....do.....do.....by being crushed by timbers.
2.....do.....do.....by being crushed by machinery.
25 others.....do.....by sundry accidents.
Making 100 cases of injuries as above characterized.

Of this number of accidents and extent of injuries—
2 persons had an arm broken.
9...do...had each a leg broken.
2...do...had each a foot crushed.
7...do...had each their head crushed.
1...do...had his toes crushed.
4...do...had their thighs broken.
4...do...had their fingers cut off, and 71 others received severe injuries.

POTTSVILLE DISTRICT COLLIERY REPORTS FOR 1874.

No. 1.—ANCHOR.—*John Wadlinger, Operator.*

This colliery is situated in Heckscherville, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of two double slopes sunk 300 yards underneath the water level, on the south dip of the Crosby vein, in 14 feet of coal and 60° dips. The Church vein is open by a tunnel driven from the Crosby gangway 45 yards long. The west panel of the Crosby vein is abandoned; 8 breasts are working on its east panel; 71 yards of a tunnel opens the Daniel vein northward, in 20 feet of coal; 6 breasts are working in its eastern panel; 8 breasts are working in its west panel, in 5 feet of coal.

No 2 slope is sunk in the Leller vein 300 yards deep; this slope is used for drainage and a second outlet. Ventilation is effected by a 40-horse fan; all the air currents have connections in the different veins, and a constant circulation kept up until discharged at the surface; this system is necessary, as the mine generates gas largely.

Steam power in use.—There are 9 steam engines=240-horse power, with 20 boilers; 142 men and 42 boys are employed; 15 mules, 35 wagons and 3,000 yards of track are used. Two men and two boys were killed, three of which were by explosion of gas, and one by breaking of slope chain.

No. 2.—HICKORY SHAFT.—*Hickory Coal Company, Operators.*

The colliery is situated at Wadesville, near Pottsville, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double cageway and a water department; the shaft is sunk 696 feet deep on the south dip of the 7 feet vein; 2 planes are open up into a level where gangways are open in any direction needed, as the extensive body of coal re-

quires it; 6 principle gangways are open working 65 breasts; all the work done gives general satisfaction. From this colliery 200 railroad cars can be shipped daily on an average of 860 tons per day, of ten hours.

Ventilation is produced by a 25-horse fan, located 900 yards north of the shaft, producing a discharge of 39,000 cubic feet of air per minute.

Steam power in use—Is 7 engines=786-horse power, with 21 boilers in good condition; 337 men and 146 boys are employed; 31 mules, 100 wagons and 10,560 yards of track is used. For good workmanship and safety there is no superior in this district to Manager and Superintendent Althouse.

No. 3.—New Kirk.—*Philadelphia and Reading Coal and Iron Company, owners, and Fry and Shoemaker, Operators.*

This colliery is situated at New Kirk. It consists of a double track coal slope, sunk 220 yards deep, on the south dip of the F vein on a 43° dip, with gangways open east and west. A tunnel 8 yards long opens the F vein on its north dip, working one breast in 3 feet of coal, increasing as the vein ascends to 14 feet; 6 breasts are working on the west gangway, in 4 feet of coal, and increases up to 10 feet. The E vein is open north by a tunnel 100 yards long; its west panel is idle, but in coal 25 feet thick. The D vein will shortly be open by a tunnel.

No. 2 slope is sunk on the Gregor vein, on its south dip on a 42° angle, this slope is intended to be used for drainage, to accomodate men and material. All the work done is satisfactory.

Ventilation is produced by a 20-horse fan, and gives satisfactory results. 7 steam engines=270 horse power in use; 17 boilers in good condition; 101 men and 43 boys employed, 12 mules, 50 wagons and 3,000 yards of track in use. Monthly shipments, 6,000 tons.

No. 4.—Alaska.—*General H. L. Cake, Operator.*

This colliery is situated in Tamaqua, on lands of the P. R. C. and I. Co. It consists of 2 drifts open on the C and A veins; dip 60° south, in 8 feet of coal; what mining is done is chiefly confined to robbing out pillars.

The A vein workings are also nearly finished, and resort is had to robbing out pillars.

Ventilation is effected by natural currents and renders but little satisfaction. 4 engines are used=140-horse power, with 7 boilers found in good condition; 90 men and 25 boys are employed at the colliery, 18 mules, 53 wagons, 3,000 yards of track are used.

No. 5.—Eagle Hill.—*Philadelphia and Reading Coal and Iron Company, owners.—J. C. Oliver, Operator.*

This colliery is situated at Eagle Hill. It consists of a double cage-way shaft, sunk 100 yards deep, a tunnel thence opens the E vein, a slope is sunk on this vein from the shaft level 160 yards deeper, having 4 gangways open in it, the coal of which has been extracted. A new slope has been sunk from the shaft level 246 yards deep having breast runs of 86 yards, to the upper lift; 7 breasts are working on its eastern panel, in coal 12 feet thick, another tunnel opens the underlying seam of the E. vein,

in coal 20 feet thick; the character of the work done in regard to strength and safety is satisfactory.

Ventilation is produced by a 20-horse fan, which from its system of courses and traverses through the different panels renders full satisfactson.

Engines in use.—Eight engines=365-horse power, with 15 boilers, all in good order, and well conditioned; 101 men and 41 boys employed, 7 mules, 50 wagons and 3,000 yards of track in use.

No. 6.—GLENTWORTH.—*Philadelphia and Reading Coal and Iron Company, Owners.—J. C. Oliver, Operator.*

This colliery is situated at Eagle Hill. It consists of a double slope sunk on the south dip of the Primrose vein on an angle of 30°. The whole lift has been worked to the boundary line, and now resort is had to robbing back the pillar supports, &c.; 5 engines in use, 245 horse power, with 8 boilers reported to be in good condition; 93 men, 27 boys are employed; 9 mules, 30 wagons and 2,040 yards of tracks are used; monthly shipments will average 5,000 tons.

No. 7.—BUCKVILLE.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Buckville borough. It consists of a double slope sunk 280 yards on the F vein dip south 45°; 6 breasts are working on its west panel; 96 yards of a tunnel driven north opens the E vein; working 7 breasts on its west panel, in 22 feet of coal; the E vein is well covered with solid top rock, while that of the F vein is faulty, necessitating the working of 6 yard breastings, although the mine is put in a condition to make mining safe.

Ventilation is effected by a 10-horse fan. The slope is used for an inlet, the current passing down in the F works, through the tunnels, returning back through the E works and out by the fan, this system is found to supply a sufficiency of air and remove all noxious gases.

Engines.—There are 10 engines=500-horse power, and one 280-horse pumping engine; 11 engines of 780 horse power, with 21 boilers, all of which are in good condition; 103 men and 71 boys are employed; 16 mules, 30 wagons; 2,300 yards of track are used.

Casualties.—Rosser Rodrick, fire boss, was killed by an explosion of gas, and Martin Brannan, boy, was killed on the breaker plane by being run over by wagons; three others were injured.

No. 8.—COALDALE.—*Lehigh and Wilkesbarre Coal Company Owners and Operators.*

This colliery is situated at Coaldale. It consists of three slopes and a tunnel opening. The first lift on these slopes is all worked out, except robbing back pillars. The second lift is eighty-nine yards deep, with east and west panels open. The third slope is used for drainage and a second outlet. Ten breasts are working on the second lift in coal seventy feet thick. Twelve breasts are worked on the west panel. All this work I consider safe and well managed.

Ventilation is produced by a ten horse-power fan, the slope being used for an inlet. The currents are conducted to the working places and returned to the fan outlet. In this manner each panel receives its full supply of fresh air, and the noxious air removed by private courses outward.

Engines in Use.—There are seven steam engines, 195 horse-power; one Bull or Cornish engine for pumping, 500 horse-power, with seventeen good boilers, and well conditioned throughout.

One hundred and eighty-three men and 63 boys are employed; 37 mules, 150 wagons and 4,000 yards of tracks are used.

Casualties this Year.—Five men were killed by sundry accidents.

No. 9.—Winlack.—*Rich. Winlack & Co., Operators.*

This colliery is situated south of Tamaqua, on lands of the P. R. C. and I. Co. It consists of a drift opening on the Q vein, north dip 60°, in six feet of coal. Four breasts are working in its gangway. The P vein is opened by a tunnel in twenty feet of coal.

Ventilation is produced by means of a furnace, which proves satisfactory.

Two engines are used; one a breaker engine of 30-horse power, and a dirt plane engine of 20-horse power, with four good boilers in use.

Twenty-six men and 12 boys are employed. 6 mules, 17 wagons and 2,000 yards of tracks are used.

No 10.—Beechwood.—*P. R. C. and I. Co, Owners and Operators.*

This colliery is situated at Mount Laffee, three miles north of Pottsville. It consists of double slopes on the E vein, 55° south dip. There are 19 breasts working on its slant gangway, with five main gangways open on the slope level; and 18 breasts working on a new slant, with 16 other breasts working in other panels. The mine generates fire-damp largely, but the ventilation is so well established that any extensive explosion is not apprehended. Six fire-bosses are on duty and mining is carried on with naked lights except in dangerous localities.

Five steam engines are in use of 314-horse power. A fan of 30-horse power is used for ventilation; with 12 good boilers in use. Drainage is effected by 2, 16 and 14 inch column pumps.

Three hundred and seventeen men and 80 boys are employed. 27 mules and 94 wagons, with 5,280 yards of tracks, are used.

Casualties During the Year.—Three men were killed by an explosion of fire-damp, though according to the verdict rendered in the case it was considered an accident.

No. 11.—Oak Dale Shaft.—*P. R. C. and I. Co., Owners and Operators.*

This colliery is situated in Glen Carbon, and consists of two shafts sunk on the Red Ash veins. The first slope is 30 yard deep. From its bottom a tunnel is driven south, cutting four veins: The Red Ash, Church, Crosby and Daniel veins, the coal of which is nearly extracted. 14 yards of a new tunnel opens a new vein on its south dip. 14 breasts are working in its west gangway, employing 38 men.

The new shaft is 100 yards deep, with a slope sunk in its west gangway down from the surface, which is used for drainage and a second outlet; here four veins are open in this shaft, the same as above, nearly all worked to the tract line, now resort is had to robbing out pillars. A tunnel from the Crosby to the Daniel vein is 96 yards long; its east gangway has been driven to where the seam is only two foot thick and discontinued. There are 19 breasts working on its west gangway, in 9 feet of coal. All manner of work done in the mine gives satisfaction as to strength and safety.

Ventilation is produced by a twenty-horse fan, each panel being ventilated by separate currents, and traverses the working places, returning to the fan outlet in air courses separated from the fresh currents, removing in its outward passage all impure air.

Machinery.—Eight steam engines are in use of 580-horse power, with 15 good steam boilers in use; 139 men and 62 boys are employed; 21 mules and 88 wagons; 6,050 yards of track are in use.

No. 12.—Peach Mountain.—*John Sullivan, Operator.*

This colliery is situated in Tuscarora, on lands of Gideon Best and others. It consists of a single slope, sunk 65 yards deep on the south dip of Peach Mountain vein on an 87° dip. A rock fault hinders the working of the west gangway. Five breasts are working on its east gangway, in 3 feet of coal, while over the gangway the coal seam is 10 feet thick.

Ventilation is produced by a furnace, which is not fully adequate to afford a proper supply of air.

Two engines are in use, 70-horse power, with three boilers, which being reported in bad condition; 32 men and 7 boys are employed; 3 mules, 11 wagons and 600 yards of tracks are in use; monthly shipments, 700 tons.

No. 13.—Ellsworth.—*John R. Davis, Operator.*

This colliery is situated near New Castle, on lands of the P. R. C. and I company. It consists of three slopes. No. 1 slope is sunk 40 yards deep, employing 13 hands in robbing out pillars; No. 2 slope is sunk on a north dip of the E. vein; the No. 3 slope is sunk on the 7 foot vein, 70 yards deep, with 8 men working in its west gangway, and 8 men working in its east gangway, in 18 feet of coal.

Ventilation by natural currents, which do not supply a sufficient amount of air for the men, but preparations are making to remedy this matter.

Twenty-nine men and six boys work inside, and five men and fourteen boys work outside. Two engines of 45 horse power are used, with four boilers in good condition, as reported. Three mules, eight wagons and 300 yards of tracks are used.

No. 14—Black Heath.—*W. H. Harris, Operator.*

This colliery is situated west of Minersville, on lands of Benjamin Commons, Esq. It consists of a tunnel opening, the Billy Best vein on its south dip. Three veins have been cut through in this tunnel, viz: the Black Heath, Billy Best and Red Ash veins. Six breasts are now ready for working. Mining in the other panels is comparatively small, but ventilation is comparatively good.

Seven hands are employed; one mule and twenty wagons and 300 yards of tracks are in use.

No. 15.—Pine Forest Shaft.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated east of St. Clair. It consists of a shaft 100 yards deep on the south dip of the seven foot vein, having two cage roads and a pump way. The coal in the eastern panel is nearly exhausted, and the western panel is in the like condition. Cross-cuts in distances of 200 yards each opens the E vein north, in 32 feet of good coal, with 16 breasts working west of the shaft bottom; a new slope is in course of sinking for a new lift and a new tunnel at the face of the west panel north to open the E vein; the character of all the work done is satisfactory.

Ventilation is effected by the action of a 25-horse fan, which results give ample satisfaction, though the mine generate large quantities of gas no serious casualty resulted during the year; seven steam engines are used to operate the colliery with, their aggregated power=855 horse; 149 men and 81 boys are employed; 22 mules; 70 wagons and 14,000 yards of tracks are used.

No. 16.—Monitor.—*Joseph Dennings, Operator.*

This colliery is situated at Wadesville, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a slope sunk on the south dip of the Primrose or G vein. Two panels are open in 6 feet of coal; the colliery is in operation for a number of years, and are resorting to robbing out the pillars and loose coal.

Ventilation is produced by a fan of 6 horse power, but by reason of sits and crushings in the gangway the proper air courses are impeded to a troublesome extent, and as carburetted hydrogen is largely generated it requires no little care to keep the place safe for miners; three engines are in use=66-horse power, with 5 boilers, whose condition is not reported; 35 men and —— boys are employed; 8 mules, 22 wagons and 3,000 yards of track is used.

No. 17.—Diamond.—*William Motzs, Operator.*

This is a small drift colliery situated near Wadesville on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a drift opened on the Diamond or J vein; the mine is worked by main and counter gangways; 5 breasts are working on the south panel, in 4 feet of coal, on the gangway, but increases to 15 feet in the breasts; the mine requires some repairs to better its condition. Ventilation is produced by natural currents which cannot give an adequate supply; 25 men and 11 boys are employed; a 10-horse breaker engine with one boiler is used; 2 mules, 12 wagons and 700 yards of tracks in use.

No. 18.—Thomaston Colliery.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Thomaston, and consists of 2 double slopes on the Crosby vein, 280 yards deep, on a dip 40° south. These slopes are 1,000 yards apart. The eastern slope is used for drainage, material, and a second outlet. Seven breasts are working on the west panel of the coal slope. Ninety-five yards south a tunnel opens the Daniel vein; 11 breasts are working in its east panel, in 8 feet of coal, and 4 breasts working in its western panel, 80 yards, with a tunnel opening the Church vein with 4 breasts working on its western panel, in 10 feet of coal; 6 breasts are working on its eastern panel, in 4 feet of coal. The character of work done, and the condition of the men is satisfactory.

Ventilation is produced by a 40 horse fan, which affords a sufficient supply of air for all purposes. 6 engines are in use=380 horse power, with 26 boilers. Their condition not reported. One hundred and fifty men and 50 boys are employed; 16 mules, 30 wagons and 5,000 yards of track are used. Monthly shipments, when in full operation, will average 8,000 tons.

No. 19.—Glendower.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated in Glen Carbon, and consists of 2 slopes on the Crosby vein 260 yards deep on its north dip of 45°. The single track slope is used for drainage, men, material, and a second outlet. Four breasts are working in its west gangway, and removing loose coal in its east gangway. A tunnel, 80 yards north, opens the south dip of the Crosby vein. This being the breadth of the Crosby at this point, its angle of dip being 66° in 18 feet of coal; 4 breasts are worked in its western panel.

Ventilation is effected by 2 fans, situated on the south and north dips of the Crosby seam, which produces an abundant supply of air. The work is remarkably well done, and the operation of mining is considered safe here. Eight engines of 975-horse power, and 23 boilers, are in use. Two hundred men are employed; 22 mules, 52 wagons and 4,000 yards of track are used. The slope tackle is in good and safe order.

No. 20.—Mine Hill Gap.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at the Gap, on its northern slope. It consists of slopes on the north dip of the E vein, 65° dip in 25 feet of coal. No. 1 slope is used exclusively for coal; No. 2 for drainage, and No. 3 for men, material, and a second outlet. The mine is worked lower and upper panels. Thirty-seven yards of a tunnel opens the Leller vein on the lower gangway; 37 yards south a tunnel opens the E vein, and 13 breasts are working on this level; 37 yards of a tunnel north, and 700 yards east of the coal slope, opens the east Leller vein again, with 12 breasts working in 25 feet of coal. These veins are opened by 4 tunnels on their north and south dips. The character of all the work is apparently permanent and safe.

Ventilation is effected by a 25-horse fan, whose operation results very satisfactory, although large quantities of carburetted hydrogen gas is generated; the arrangements of the air currents are such as to remove all deleterious air, and render the mine safe.

Eight engines of 1,280-horse power, and 26 boilers, are in use. All their appointments I found in good condition. Two hundred and nineteen men and 108 boys are employed; 21 mules, 50 wagons and 3,000 yards of track are used.

No. 21.—Richardson.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated in Glen Carbon. It consists of 2 double slopes on the Crosby vein, on a 66° south dip, on the Crosby vein; 200 yards deep; a tunnel 45 yards south opens the Church vein, in 6 feet of coal; the coal in the Crosby vein runs from 6 to 14 feet thick; a new tunnel is in course of construction to open the Daniel vein. Nothing of any consequence had been done at the colliery for some time owing to its being on fire and had to be deluged with water to extinguish it, which was successfully effected.

Five engines are on the premises with a power=680-horse, and 18 good boilers. An extended report is unnecessary.

No. 22.—Sharp Mountain Drift.—*Ballaizer & Co., Operators.*

This is a land sale operation situate on lands of Mr. Richardson, south of Pottsville, and consists of a drift opening with a small slope sunk on the vein in 7 feet of coal, giving employment to 6 hands. Its ventilation is satisfactory; 2 mules and 3 wagons are in use; the present condition of the mines is safe, and under some improvements.

No. 23.—Eagle Colliery.—*George W. John, Operator.*

The colliery is situated at St. Clair, on lands of the P. R. C. and I. Co. It consists of a slope on the E vein, and 2 drifts on the D, or Skidmore veins; 5 breasts are worked on this drift (No. 1) and 5 breasts are worked on the lower drift level. Four gangways are open on the Skidmore slope, with many counter gangways also in operation; 7 breasts are working in its lower east gangway in 10 feet of coal; 86 yards of a tunnel opens the D vein on the lower water levels. This has been one of the most extensive mines in the country, being 36 years in successful operation with the same gentlemen without intermission, during which time its averege annual shipments would be 90,000 tons besides its local consumption which would bring it up to 4,000,000 tons.

Ventilation is effected by a 20-horse fan. The air currents are so well arranged in this vast mine that little or no danger need be apprehended from explosion.

Five engines, 105-horse power, in use, with seven boilers, all in good condition. 93 men and 40 boys are employed. 9 mules, 125 wagons and 5,280 yards of tracks are used.

No. 24.—Lambert.—*New Philadelphia Mining Company.*

This colliery is situated near New Philadelphia, on lands of Cooper, Hewett & Co. It consists of old, abandoned works, except a tunnel 49 yards in length, which opens the Charley Potts vein with 9 breasts working,

and 11 breasts open in its west panel, in 2 to 5½ feet thick; a north tunnel 61 yards long opens the Clarkson vein. The Palmer vein will shortly be open by a new shaft from which it is intended to open the E vein. The character of work done is substantial and safe. Ventilation is effected by a 10-horse fan, which supplies sufficient ventilation for all purposes. Four engines=140-horse power, with 9 boilers in use; 58 men and 19 boys are employed; 7 mules, 32 wagons and 1,873 yards of tracks are used. A new 60-horse power engine, with 4 new boilers were put in operation lately.

No. 25.—Baltimore Colliery.—*James Boyce, Operator.*

This colliery is situated at Silver Creek, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of double slope on the D vein, 100 yards deep on a 30° south dip; all this slope level is idle at present. Eighty-six yards of a tunnel opens the E vein; 4 breasts are working in its west gangway, and 7 breasts are open in its east gangway. A north tunnel opens the B or Buck Mountain vein in 10 feet of coal, with 3 breasts working in this gangway; the old works are troublesome to keep repaired; otherwise, in my opinion, the works are unsafe.

Ventilation is produced by a 10-horse fan; the supply of air, if well managed, would be adequate; at present it is not sufficient; 94 men and 47 boys are employed; 12 mules, 60 wagons and 3,000 yards of tracks are in use; 5 engines=165-horse power, with 8 boilers are in use.

No. 26.—Shoefly.—*Jos. Dennings, Operator.*

This colliery is situated west of New Castle, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a slope opening on the out-crop of the E vein, dip 45° south; two breasts are working on its east gangway in 50 feet of coal.

Ventilation is produced by a natural current, which does not produce an adequate supply of air, but improvements in this case are going on, which will afford relief shortly. Two engines=28-horse power, with two boilers, are in use, all of which machinery, ropes and tackle are in bad condition; 10 men and 9 boys are employed; 3 mules and six wagons are in use; also 300 yards of track are laid.

No. 27.—Palmer.—*R. Holohan & Bro., Operators.*

This is a small landsale drift, situated near Middle Port, on lands of Peter W. Sheafer, Esq., opening the Palmer vein, resorting to robbing out the pillars only.

Ventilation is produced by natural draft, and always subject to atmospheric changes, but not sufficiently adequate to supply proper air. Three men and six boys are employed in the colliery.

No. 28.—York Farm Slope.—*Job Rich, Operator.*

This small landsale colliery is situated on the western environs of Pottsville. It consists of a small slope; mining is chiefly confined to robbing out pillars, and kept in bad condition generally.

Natural currents ventilate this mine. One engine—20-horse power, with three boilers are used; 8 hands are employed; 1 mule, 3 wagons and 500 yards of track are used; annual shipment some 1,600 tons.

No. 29.—Forestville Slope.—*Daniel Hock & Co., Operators.*

This colliery is situated at Forestville, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a single slope on the White Ash vein, dip 25° south, with east and west panels open. A tunnel opens the Billy Best vein, with 14 breasts working in it, in 5 feet of coal, with runs of 130 yards; 16 breasts are working in its counter gangway, with 160 yards of a run, a solid rock covering the whole seam, making mining a safe operation.

Ventilation is effected by the operation of a 20-horse fan, which produces a sufficent supply of air for all purposes. Four engines, their combined power—85-horse, with 8 good boilers; 141 men and 36 boys are employed; 10 mules, 57 wagons and 4,000 yards of track are used.

No. 30.—Little Tracy.—*William Clark, Operator.*

This is a small landsale colliery, situated in East Delaware, north of Pottsville. It consists of a single track slope on the Little Tracy vein, in four feet of coal. Five hands are employed, using one mule and two wagons. The work done is considered safe. A detailed statement is unnecessary.

No. 31.—Sharp Mountain Slope.—*Joseph Wood, Operator.*

This colliery is situated on the southern limits of Pottsville, on lands of Mr. Richardson. It is a small landsale slope on the Bartolet vein, on a 70° dip. 55 yards of a tunnel south opens the White Ash vein in 7 feet of coal. Mining is chiefly confined to robbing pillars. Ventilation is produced by natural currents, with available outlets, which renders ventilation easy and adequate.

Two engines of 25-horse power, with one boiler, are used; 9 hands are employed, 3 horses, 4 wagons and 1,000 yards of tracks are used.

No. 32.—Black Valley.—*Michael Scully, Operator.*

This is a small landsale colliery, near Minersville, consisting of a slope and drift on the F vein, in four feet of coal. Ventilation by natural means; employing 10 hands, with 3 mules, 4 wagons and 600 yards of tracks in use.

No. 33.—Faust Colliery.—*L. Faust, Operator.*

This is a small colliery, employing 7 hands, with 1 mule and 2 wagons. A small slope opens on the lands of the P. R. C. and I. company. Mining is confined to extracting loose coal and robbing out pillars.

No. 34.—Diamond.—*Lloyd & Glover, Operators*

This colliery is situated at Phœnix Park, on lands of the P. R. C. and I. company. It consists of a double slope open on the Big Diamond vein in 6 feet of coal, south dip of 25°. 10 breasts are working in its east gangway and 8 breasts on its west gangway in 8 feet of coal. A counter gangway is open 70 yards above the main level, with 2 main outlets for ingress and egress for safety of miners.

Ventilation is produced by a 20-horse fan. The air traverses the works, entering each panel separately and discharges at the fan, affording a safe and ample supply of air for all purposes.

Six engines=412-horse power, with 10 boilers—all of which machinery and their appointments are found in good condition. 84 men and 21 boys are employed; 6 mules, 25 wagons and 1,250 yards of tracks are used.

No. 35.—Taylorville.—*Philadelphia and Reading Coal and Iron Company, Owners and operators.*

This colliery is situated in West Glen Carbon. It consists of a double slope in 3 lifts 380 yards deep on the south dip of the Daniel vein, in 60° dip. This mine is worked in different levels and counters. 13 breasts are working in the colliery, and a resort is had to robbing out pillars and loose coal. The seam is all overlaid by a splendid rock-top which makes mining a safe operation, and all work done is quite satisfactory, with a good safe outlet for miners to travel in.

Ventilation is effected by the action of a 40-horse fan in using the slope for an inlet, the air being split in currents, traversing the different panels throughout, returning through the working places to the fan out-cast, giving a full supply of air at all times as necessary.

Seven engines=710-horse power, with 12 good boilers, are in use. A new Cornish steam pump of 500-horse power is used for drainage. 94 men and 28 boys are employed; 10 mules, 20 slope wagons and 2,450 yards of tracks are used.

Casualties.—Two men were killed in the mine, one by falling down the slope, the other by being crushed to death by a rush of loose coal from the battery.

No. 36.—Bull Run.—*Wilkesbarre and Lehigh Company, Owners and Operators.*

This colliery is situated east of Tamaqua. It consists of a tunnel 331 yards north, opening the E vein. A slope has been sunk at the end of this tunnel 70 yards deep on its south dip of 40°, with two gangways open; 10 breasts are working on the east in 50 feet of coal; 27 breasts are working in the west gangway, which gangway connects with the east gangway of the Greenwood colliery westward. The coal of the Greenwood mines will be prepared at the Bull Run breaker.

Ventilation is effected by a 20-horse fan, its practical application gives satisfactory results.

Seven engines=440-horse power, with 12 boilers, all of which are in good condition; 214 men and 60 boys are employed; 17 mules, 100 wagons and 4,050 yards of tracks are used.

No. 37.—West Pine Knot.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Coal Castle, and consists of a double slope sunk in two lifts 347 yards deep, on the south dip of the E vein, and a new pump slope has been sunk this year of 237 yards deep, with a 500-horse Cornish pump located therein for draining the different veins that are to be hereafter mined in the works, as tunnels are to be excavated to connect the several coal seams that are on the track, crossing the whole basin to its north dip to the Mine Hill Ridge southward; this lift will give breast runs upon all the several veins that will be opened of 85 yards, which will constitute this one of the largest producing colleries in the county.

Ventilation, as yet, is not established, as the works have only been built this year.

Two engines=590-horse power, with two six feet diameters and 30 feet long boilers; 44 men are employed in and about the colliery.

No. 38.—St. Clair Drift.—*A. Jackson, Operator.*

This is a landsale colliery with a drift opening the Holmes or F vein with 3 gangways; 5 breasts are working on its north; 6 breasts are working on its slant gangway, and robbing out pillars is also resorted to.

Ventilation of the mine is effected by natural currents, which produces a sufficient supply for all purposes. A 10-horse engine, with 2 boilers operates the mine; 17 men and 8 boys are employed; 3 mules and 9 wagons are used.

No. 39.—Ravensdale Slope.—*Wm. H. Starr, Operator.*

This colliery is situated at Ravensdale on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double slope sunk 300 yards in 2 lifts, on the G, or Primrose vein, in 7 feet of coal; 2 panels are opened, which, at present, are not worked. Mining is confined to working through a rock fault on its west panel, and opening a second outlet and air course. Fire-damp is largely produced in the mine, which necessitates the use of a second fan, the present fan being inadequate to supply a sufficient amount of pure and fresh air for mining and safety of men. A 20-horse fan is now in use, but not of a requisite power to insure success.

Four engines=160-horse power, with 10 good boilers are used; 82 men and 29 boys are employed; 11 mules, 40 wagons and 1,400 yards of track are used. Casualties resulting in the death of one and injuring of two others during the year.

No 40.—Bullock Drift.—*T. & E. J. Price, Operators,*

The colliery is a landsale colliery, on land of Bullock & Brothers, Philadelphia. It consists of a drift opening the Cockel vein in 4 feet of coal, ventilated by natural currents. 10 men and 6 boys are employed; 3 mules, 7 wagons, 500 yards of track are used; shipments monthly, about 100 tons.

No. 41.—Kentucky Slope.—*Messrs. Shall & Donohoe, Operators.*

This colliery is situated at Tuscarora, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double slope sunk on the E vein, on a 60° south dip; the present lift is exhausted of coal; a fault in its western panel obstructed progress to further development for a long time; until lately, measures have been taken to excavate through this rock fault, and to discover its extent.

Ventilation is produced by a 20-horse power fan, practically applied and capable of producing a sufficient supply.

4 engines=205-horse power with 11 boilers are in use. 25 hands are employed.

No. 42.—Landsales.

Llewellyn & Co.,	operates the	York colliery,	employing.....	27 hands.
George Wilson	....do	.....Peach Mountain colliery,	employing	9 "
J. R. Deam	.....do	.....Peacock colliery,	employing.....	6 "
Wm. Willliams	....do	.....Palmer colliery,	employing.....	5 "
John Reese	.....do	.....N. America colliery,	employing....	5 "
William Mead	.....do	.....N. America, No. 2, col.,	employing,	5 "

Making in the aggregate 48 collieries of all classes, giving employment to 3,434 men, 1,228 boys; total, 4,662 hands, and using 157 engines=11,631-horse power, with 346 steam boilers, 22 fans, 43 slopes, 5 shafts, 18 drifts, 503 breasts, 38 steam pumps=4,811-horse power, 3 furnaces, 26 tunnels.

Casualties for the year as follows, viz: 35 deaths, 100 injuries; 14 widows and 65 orphans. Thus making 1 death for each 93 persons employed; 1 injury for each 32 persons employed.

Maps of Collieries for 1874.

The following maps of collieries have been supplied by the operators and land-owners to the inspectors of mines, carefully prepared by competent engineers, and are now of record, and on file in the vault of the Merchant's Exchange Bank at Pottsville

Pottsville District.

1. Beechwood	1 slope.	21. Monitor	1 slope.
2. Norwegian	1 "	22. Feeder Dam	1 "
3. Oak Hill	2 slopes.	23. Ravensdale	1 "
4. Duncan	1 "	24. Pine Forest	1 shaft.
5. Kears	3 slopes.	25. Kentucky	1 slope.
6. E. and W. Pine Knot	2 "	26. Peach Mountain	1 "
7. Thomaston	2 "	27. Swift Creek	1 "
8. Heckscherville	1 slope.	28. New Kirk	1 "
Do	1 shaft.	29. Wabash	1 "
9. Richardson	1 "	30. Reevesdale	1 "
Do	1 slope.	31. Tamaqua	1 shaft.
10. Glendower	1 "	32. Greenwood	1 slope.
11. Taylorville	1 "	33. Bull Run	1 "
12. Monterey	1 "	34. Coaldale	1 "
13. Diamond Wolf Creek	2 slopes.	35. Commercial	3 slopes.
14. Kear, Wolf Creek	1 slope.	36. Ledger Vein	1 slope.
15. Forestville	1 "	37. Silver Creek	1 "
16. Phœnix, 1 and 2	2 slopes.	38. Glentworth	1 "
17. Phœnix, No. 3	1 slope.	39. Live Oak	1 "
18. Eagle	1 "	40. Eagle Hill	1 slope, 1 shaft.
19. Hickory	1 shaft.	41. York Farm	1 slope.
20. Manchester	2 slopes.	42. Delaware	1 slope, 2 shafts.

NAMES OF THE ASHLAND DISTRICT COLLIERIES, THE NUMBERS, AND THE COUNTY TO WHICH THEY BELONG.

1. Shenandoah City, Schuylkill county.
2. Focht and Whittaker.....do.
3. Ward and Oliver.....do.
4. Mahanoy City.....do.
5. Buck Mountain.....do.
6. Diamond.....do.
7. Enterprise.....do.
8. Elmwood.....do.
9. Tunnel Ridge.....do.
10. St. Nicholas.....do.
11. Suffolk.....do.
12. Gilberton.....do.
13. Draper.....do.
14. New Boston.....do.
15. West Big Mine Run.....do.
16. Union, Columbia county.....
17. Primrose.....Schuylkill county.
18. Glendon.....do.
19. Lawrence.....do.
20. Keystone.....do.
21. Girard.....do.
22. West Shenandoah.....do.
23. P. & R. C. & Iron Co. slope..do.
24. Plank Ridge.....do.
25. Indian Ridge.....do.
26. Honey Brook, 1, 2, 3 and 4...do.
27. Haman.....do.
28. Stanton.....do.
29. Preston, No. 1.....do.
30. Preston, No. 2.....do.
31. Preston, No. 3.....do.
32. Preston, No. 4.....do.
33. East Big Mine Run.....do.
34. Tunnel.....do.
35. Locust Run, Columbia county.
36. Locustdale, Columbia county.
37. Continental.....do.
38. Malvern, Schuylkill county.
39. Bear Run.....do.
40. Thomas.....do.
41. William Penn.....do.
42. Girard Mammoth..do.
43. Delano.....do.
44. Turkey Run.....do.
45. Colorado.....do.
46. Centennial, Columbia county.
47. Copley.....Schuylkill county.
48. Ellengowan.....do.
49. Knickerbocker.....do.
50. Yatesville.....do.
51. Furnace.....do.
52. Boston Run.....do.
53. Lost Creek.....do.
54. New Slope.....do.
55. Lehigh, No 3.....do.
56. Philadelphia Colliery....do.
57. Koh-i-noor Shaft.....do.
58. Swate's Drift.....do.
59. Bear Ridge.....do.
60. Bear Ridge Tunnel.....do.
61. Hazle Dell, Columbia county.
62. Buck Mountain, Schuylkill county.
63. Cambrian.....do.
64. Beaver Run.....do.
65. Cuyler.....do.
66. Mammoth Drift.....do.
67. North Mahanoy.....do.
68. Hillside.....do.
69. Trenton.....do.
70. Hartford.....do.

REPORT

OF THE

INSPECTORS OF MINES FOR ASHLAND DISTRICT FOR THE YEAR ENDING DECEMBER 31, A. D. 1874, OFFICE ASHLAND, SCHUYLKILL COUNTY, PA.

To His Excellency, JOHN F. HARTRANFT,

Governor of the Commonwealth of Pennsylvania :

SIR :—In compliance with the requirements of an act of General Assembly of 1870, &c., I have the honor to herewith submit my annual report of all the collieries that are in operation in my district, showing the number and character of all the fatal casualties and injuries that occurred during the year just closed ; also detailed statements of each colliery, their capacity for producing and preparing coal, showing the number of persons employed, the condition of their ventilation and safety, and a general information necessary for reference for those interested. I am pleased to be able to state that a decided improvement has taken place, both in their condition, ventilation and drainage ; that a better regard is paid to the discipline and good order among the miners as well as superintendents, sufficient to express confidence in the operation of the law in its good influence, regarding the safety of men and practical workings of the mines and safe machinery. Having the honor to be, with great respect,

Your Excellency's obedient servant,

JOHN ELTRINGHAM.

Inspector of Mines.

ASHLAND DISTRICT.

Names of persons who were killed or who died from injuries in this district in the year ending December 31, A. D. 1874.

DATE.	Names of Persons Killed.	Names of Collieries,	Wife.....	Children....	Remarks.
Jan. 2,	William Brodrick	Ellengowan	1	5	Died of erysipelas; leg crushed; got cold.
Feb. 27,	John Westfield	Old Pioneer	1	4	Killed; an airhole closed on him while mining.
April 4,	Edward Monaghan	Big Mine Run	....	....	Killed by a premature discharge of a blast.
4,	Thomas Conner	Preston, No. 3	1	5	Killed by a fall of coal.
13,	John Nevins	Big Mine Run	1	....	Killed by an explosion of fire-damp.
17,	John Litzman	Koh-i-noor	1	....	Killed by a fall of coal.
24,	Wm. Mentz	Shenandoah	....	....	Killed by a fall of coal.
25,	Thomas Stack	Plank Ridge	1	4	Killed by a fall of coal.
May 7,	Jeremiah Grifliths	Thomas	1	1	Killed by a fall of coal.
20,	John Conway	Preston, No. 2	....	....	Killed; he was crushed by wagons.
23,	Edward Hockly	Big Mine Run	1	6	Died of injuries from a fall of coal.
June 11,	Lewis Magdeburg	Ashland District, No. 9	....	....	Died; injured by a fall of coal.
15,	James Stitzler, boy	Montana	....	....	Killed; was run over by dirt wagons.
15,	Thomas M'Andrews	Preston, No. 1	....	....	Killed by a fall of coal.
26,	John Hogins	Grant	....	....	Killed by an explosion of a steam boiler.
26,	Lewis Weihl	Grant	....	....	Killed by the above accident.
July 11,	John Walsh	Colorado	1	6	Killed; was thrown out of a slope wagon on its descent.
15,	Wm. Heiser	St. Nicholas	....	....	Killed by a fall of a plank in the slope.
Sept. 1,	John Hoar	Lost Creek	....	....	Killed by a fall of coal.
2,	Edward Chambers	Shenandoah City	....	....	Killed by an explosion of fire-damp.
18,	Wm. Duffy	Koh-i-noor	....	....	Killed by a fall of coal.
21,	Wm. Mentz	Shenandoah	....	....	Killed by a fall of coal.
26,	Michael Barrett	Girard Mammoth	1	2	Killed by a fall of coal.
28,	John Malone	Bear Run	1	2	Died; injured by an explosion of powder.
28,	Hugh Mullowney	Girardsville	1	5	Killed by a fall of coal.
Oct. 6,	Lyman Clymer	Grant	....	....	Died; he was mortally injured by a fall of coal.
16,	Wm. Mulhall	Continental	....	....	Killed; the rope broke and cast him down the slope.
21,	Patrick Monaghan	Indian Ridge	....	....	Killed by a fall of coal.
22,	Charles Divvers	Honey Brook	....	....	Died from injuries he received in the mine.
Nov. 11,	Austin M'Graill	Plank Ridge	1	6	Killed by a fall of coal.

ASHLAND DISTRICT—Continued.

Date.	Names of Persons Killed.	Names of Collieries.	Wife.....	Children....	Remarks.
Nov. 13,	John Booth	Plank Ridge	....	....	Died in a city hospital from injuries from a fall of coal.
13,	Dennis Collins	Bear Ridge	1	3	Killed in riding out of the slope; jammed.
14,	Abel Davis	Glendon	1	6	Killed by the slope gates falling on him.
17,	Charles Stouffenberg	Keystone	1	3	Died; got crushed by wagons on the 13th inst.
20,	James Mahoney	Lawrence	1	....	Killed as he was riding down the slope.
23,	John Breen	Koh-i-noor	1	4	Died in the mine of heart disease.
24,	Dennis Colahan	Primrose	....	....	Killed by a piece of coal falling off a pillar.
28,	Michael Whalen	Big Mine Run	1	6	Killed by a prop forced from its position.
Dec. 1,	James Meiggs	Girard	1	3	Killed by effects of choke-damp; acting as fire boss.
1,	John Hyle	New Boston	....	....	Killed; was crushed by wagons.
1,	Cornelius Flynn	Plank Ridge	....	....	Died; injured by a fall of coal.
21,	Thomas Harris	Union	....	....	Killed on the dirt bank.
21,	Lewis Wethers	Gilberton	....	....	Died; being kicked by a mule, and had a leg amputated.
No date,	Patrick Farrell, single	Big Mine Run	....	....	Killed by a fall of coal.

Total number of persons who lost their lives in and about the collieries of the Ashland district this year was 44. Of this number, 39 were men and 5 were boys under twenty-one years of age; leaving 20 widows and 71 orphans, having little or no means for their support than the product of the labor of the above named deceased persons. Of this number,

20 persons lost their lives by falls of coal.
6 persons lost their lives by being crushed by wagons.
3 persons lost their lives by falling down slopes and shafts.
3 persons lost their lives by explosions of fire-damp.
2 persons lost their lives by explosions of steam boilers.
1 person lost his life by an explosion of powder.
1 person lost his life by an explosion of a blast.
1 person lost his life by being crushed by a fall of props.
1 person lost his life by being crushed in an air-hole.
1 person lost his life by being crushed in the mines.
1 person lost his life by heart disease while at work.
1 person lost his life by being kicked by a mule.
1 person lost his life by a slope gate falling upon him.
1 person lost his life by a plank falling down the slope on him.
1 person lost his life by erysipelas, taking cold from injuries.
1 person lost his life by injuries received in the mines.

The following statistics will exhibit the Names and Number of Persons who were maimed and injured in the mines at Ashland district, during the year 1874:

DATE.	Names of the Maimed Persons.	Names of Collieries.	Cause of these Casualties.
Jan. 6,	Patrick Griffith	Ellengôwan	Severely hurt by segments of a screen.
7,	John Gibbons	....do	Severely crushed by the screens.
10,	Patrick Gallagher	Turkey Run	Leg broken, and severely hurt by a fall of coal.
10,	Frank Waters	Indian Ridge	Fingers cut off by a fall of coal.
16,	Edward Polkenhorn	Furnace	Head and fingers injured by a fall of coal.
16,	Patrick Carey	Wm. Penn	Hand split in two by a fall of coal.
18,	J. H. Hampton	Koh-i-noor	Hand injured; a pick had been driven into it.
18,	Frank Garvey	....do	Arm broken by a fall of coal.
Feb. 3,	Robert Mills	Shenandoah	Collar-bone broken by a fall.
27,	A miner	Pioneer	Severely injured in an air-hole.
27,	George Leonard	Gilberton	Body severely injured; he fell 100 yards down the slope.
27,	Stephen Alsop	Wm. Penn	Body severely injured by a fall of coal.
27,	Wm. Dunkelberger	....do	Knee fractured; being crushed between wagons.
Mar. 6,	H. Phurfy	Malvern	Hand smashed by a fall of coal.
14,	Thomas Maguire	Keystone	Leg broken, and internally injured.
14,	John Preston	Koh-i-noor	Head being crushed while coupling wagons.
14,	Thomas M'Hale	Turkey Run	Severely crushed by a fall of coal.
16,	Patrick M'Manmon	Girard	Leg fractured in starting a battery.
16,	Martin Quinn	....do	Toes crushed off; run over by wagons.
18,	Joseph Hughes	Continental	Leg broken; run over by wagons.
18,	Isaac Wynne	Primrose	Head and body crushed by falling in a manway.
April 2,	Edward Monaghan	Big Mine Run	Mortally crushed in the mine; died same day.
6,	Wm. Roberts	Wm. Penn	Hand severely cut with an axe.
7,	Michael Michell	Plank Ridge	Severely crushed by wagons.
7,	James Border	Bear Run	Leg broken in riding up the slope.
11,	Ebenezer Morris	Tunnel Ridge	Severely burned by fire-damp.
13,	John Cookley	Shenandoah City	Ankle crushed by wagons running over it.
23,	John M'Cawley	Elmwood	Skull fractured by a fall of coal.
23,	Antonie Gubanos	....do	Severely crushed in riding up the slope on loaded wagons.
29,	John Rodgers	Locust Dale	Severely crushed in the mines.
May 2,	Henry Field	Tunnel Ridge	Foot crused by a fall of coal.
5,	John Harris	Primrose	Leg broken; he fell with a mule into the sump.
7,	Edward Bytheway	Sillyman	Shoulder fractured by a fall of coal.
9,	Patrick Murphy	Taylor and Lendsy	Severely burned by fire-damp.
9,	Patrick Dolan	....do....do	....do....do.
11,	Patrick M'Clain	Lehigh, No. 3	Severely hurt; was run over on the bank.

	14,	Benjamin Lewis	Ellengowan	Neck severely cut by a drill forced against it.
	14,	Richard Weeks	Trenton	Severely burned by an explosion of a keg of powder.
	22,	Michael Ryan	William Penn	Leg broken and severely crushed by a fall of coal.
	25,	John Hays	Sillyman	Leg cut off and severely crushed by a fall of coal.
	25,	Edward Hockey	Big Mine Run	Mortally crushed by a fall of coal; died.
	28,	James Miller	Preston, No. 2	Severely crushed by a fall of coal.
	28,	J. Delaney	Suffolk	Severely stunned by lightning at bottom of the slope.
	28,	Martin Foley, boy	Elmwood	Thumb cut off while spragging wagons.
	29,	John Whalen	Locustdale	Leg broken while getting off a wagon.
	29,	Peter Garvey	Preston, No. 3	Severely injured by a blast.
	29,	Simeon Herwig	Plank Ridge	Severely injured, run over by wagons.
June	6,	Joseph Brannan	William Penn	Leg crushed, run over on the bank.
	18,	A miner	Furnace	Severely crushed by a blast.
	22,	Henry Neargard	Tunnel	Severely crushed by wagons.
	26,	Thomas Holburn	Tunnel Ridge	Severely scalded by an explosion of a boiler.
	26,	Lewis Weihl	....do	Mortally scalded by explosion of same boiler; died.
	26,	Thomas Horan	Union	Dangerously kicked by a mule.
July	6,	Thomas Flaherty	Plank Ridge	Dangerously burned by fire-damp.
	6,	George Beck	....do	Foot crushed by pipes and wire rope.
	6,	Abraham Dewire	Hill & Harris	Mortally injured; sent to a Philadelphia hospital.
Aug.	5,	Jacob Rodrian	Girardsville	Severely burned by fire-damp.
	5,	David Leiser	....do	.....do.....do.
Sept.	3,	John Hoar	Lost Creek	Mortally crushed by fall of coal; died next day.
	10,	Robert Orr	Trenton	Eyes severely injured by an accident.
	17,	Jacob Potoskey	Plank Ridge	Severely crushed by a train of wagons.
	18,	Henry Pope	Big Mine Run	Face cut and ribs broken by a fall of coal.
	25,	Michael Malone	Bear Ridge	Severely burned by an explosion of powder.
	25,	John Malone, boy	....do	.....do.....do.
	25,	Patrick Toole	William Penn	Hips dislocated by a fall of coal.
	29,	Rush Webb, boy	Malvern	Arm broken, crushed by wagons.
	29,	John Haughney	Hillside	Severely crushed by wagons.
	30,	William Mentz	Shenandoah City	Mortally injured by a fall of coal; died.
Oct.	6,	John Booth	Plank Ridge	Mortally injured by a fall of coal; died.
	13,	Martin Dixon	Locustdale	Knee crushed by a fall of slate.
	13,	J. W. Davis	....do	Severely injured by a premature blast.
	18,	Liddel Gurley	Bear Run	Leg broken by a fall of coal.
	18,	Lyman Clymer	Grant	Mortally crushed by a fall of coal; died.
	18,	Dennis Harman	New Boston	Knee crushed by wagons.
	18,	T. W. Taylor	Lost Creek	Shoulder dislocated; fell into an open breast.
	19,	Lewis Bonewitzs	Thomas	Leg broken; a boiler flue fell on him.
	19,	Charles Blacker	Shenandoah City	Severely crushed, run over by wagons.
	22,	Patrick Monaghan	Indian Ridge	Mortally crushed by a fall of coal; died.
	27,	Thomas Hutton	Shenandoah City	Severely crushed and cut by a fall of coal.

NAMES OF PERSONS INJURED IN THE MINES AT ASHLAND DISTRICT—*Continued.*

DATE.	Names of the maimed Persons.	Names of Collieries.	Cause of these Casualties.
Oct. 27,	Thomas Bannan	Furnace	Head and body crushed by a fall of a fly wheel.
27,	Mahlon Garber	Bear Ridge	Spine injured; fell 45 feet by slipping of a rope.
28,	James Ross	Tunnel	Slightly injured by a fall of coal; rescued 12 hours after.
28,	James Moore	Ellengowan	Head and body crushed by a fall of coal.
28,	George Ridley	Elmwood	Arm broken; crushed by wagons.
28,	Thomas O'Brian	Turkey Run	Head and arms crushed by fall of coal.
Nov. 4,	William Armstrong	Knickerbocker	Leg broken; run over by wagons.
4,	John Hopkins	William Penn	Back crushed by a fall of coal.
6,	Frank Lewis	....do	Foot crushed; run over by wagons.
11,	John Davis	Locustdale	Severely hurt; a heavy timber rolled on him.
13,	Charles Staffenberger	Keystone	Severely crushed by wagons and timbers.
13,	George Cole	Glendon	Severely burned by fire-damp.
25,	John Irwin	Girard	Severely crushed by a fall of coal.
Dec. 1,	A Polish miner	Bear Run	Legs severely crushed by wagons.
2,	Con Flynn	Plank Ridge	Leg broken by wagons.
16,	A miner	Draper	Eyes severely injured by a fall of coal.

The foregoing statistics will exhibit the number of persons that were maimed and injured, and those of them who died subsequently of their injuries, showing that of this number of casualties,

7 persons died of the injuries they received.
15 persons had each a leg broken by sundry causes.
1 person had both legs broken.
3 persons had each an arm broken.
3 persons had each a knee broken.
1 person had his hips broken.
1 person had his ribs broken.
2 persons had their fingers cut off.
1 person had his toes cut off.
2 persons had their backs broken.
5 persons had their feet crushed and maimed.
6 persons had their heads severely crushed and injured.
4 persons had their hands severely crushed and injured.
2 persons had their eyes severely injured.
2 persons had been fatally scalded.
30 other persons received severe injuries.

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95 persons were sufferers from these casualties.

Character of the above casualties—

32 persons were injured by falls of coal.
7 persons were burned by explosions of fire-damp.
3 persons were injured by explosions of blasts.
3 persons were injured by explosions of powder.
25 persons were injured by wagons.
4 persons were injured by falling into slopes and openings.
2 persons were scalded by explosions of steam boilers.
2 persons were injured by screens.
1 person was struck by lightning at the bottom of a slope.
2 persons were crushed by timbers.
14 other persons received other severe injuries.

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95 such casualties occurred during the year 1874, against 161 in 1873.

Prominent among the casualties in the Ashland district are falls of coal and crushing by wagons. This arises principally from want of timely supports in the thick coal seams mined in the district and the urgent dispatch and haulage of coal, and numerous difficulties to be overcome in accomplishing the same.

A statement of all the collieries in the Second District—Ashland—comprising all collieries north of the Broad Mountain, in Schuylkill county, and all the collieries in Columbia county, with the New Boston colliery, are herewith respectfully submitted for your consideration.

No. 1.—Shenandoah City.

This colliery is situated in Shenandoah City, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double slope 258 yards deep on the E seam. 33 yards of a single track slope is sunk in the basin, with vast gangways opened east and west, with breasts, gangways and headings working.

A tunnel opens the No. 2 E vein, with 17 breasts working in it. A new slope has been sunk 1,170 feet eastward, with panels open, and are mining coal. Compressed air is utilized for steam power to hoist coal with.

Ventilation is effected by the operation of a steam fan of 20-horse power Carbonic acid gas is largely produced in the mine which affects ventilation to a considerable extent, requiring more outlets and attention than would be the case otherwise But the general condition of the mine is very good. A drift opens the H vein, where 8 breasts are working in excellent coal, top-rock covering.

Nine engines=338-horse power, with 11 boilers, are in use. Drainage is effected by a 60-horse pump, worked by compressed air. 176 men and 45 boys are employed ; 34 mules and 125 wagons are used. Monthly shipments, 12,000 tons.

Casualties during the year.—One person was killed and one injured by an explosion of fire-damp.

No. 2.—Focht.—*Focht & Whittaker, Operators.*

This colliery is situated east of Mahanoy city, on lands of the Lehigh Valley railroad company. It consists of a shaft operation, opening the B, or Buck Mountain vein in 16 feet of coal, with east and west gangways, each 1,300 yards, and counters each 1,600 yards long, working 28 breasts, with runs of 85 yards up the pitch. The mine is extensive, and large shipments of coal have been made from it these last 12 years. A dangerous rock top covers the vein.

Ventilation is effected by working some breasts out to the surface, with considerable good effect, assisted by a fan.

Three engines=100-horse power, with 4 boilers, in good condition ; 104 men and 14 boys are employed ; 18 mules, 53 wagons and 3,250 yards of tracks are used. For the improvement of ventilation I recommend such measures as would effect that object.

No. 3.—Ward & Oliver, (new.)—*Ward & Oliver, Operators.*

This colliery is situated south of Mahanoy City, on lands of the Philadelphia and Reading Coal and Iron company. It consists of 175 yards of a tunnel opening the 7 foot vein, with east and west gangways. Breast and headings working. Mining here is considered a safe operation.

One engine of 12-horse power, with 3 boilers, in use ; 28 men and 5 boys are employed ; 2 mules, 20 wagons and 350 yards of track are used. Ventilation natural, but considered good.

No. 4.—Mahanoy City.—*P. R. C. and I. Co., Owners and Operators.*

This colliery is situated north of the city. It consists of a slope operation 110 yards under the water level, on the south dip of the E vein, on a 33° south dip. The mine has been extensively worked the last twelve years, producing large shipments. A pump slope is sunk east of the coal slope, which serves as a second outlet for men. A tunnel 100 yards south opens the G vein on its south dip, with breast runs of 60 yards. Mining is here confined to robbing out pillars and loose coal.

Ventilation is produced by the operation of a 20-horse fan, which supplies an adequate amount of air for miners Six engines, 310-horse power, with 12 good boilers, are in use. Drainage is effected by a 60-horse power steam pump. 219 men and 90 boys are employed ; 17 mules, 50 wagons and 3,920 yards of tracks are used.

No. 5.—Buck Mountain, (new.)—*John Holland, Operator.*

This colliery is situated at Mahanoy City, on lands of the P. R. C. and I. company. It consists of a tunnel 70 yards long, opening the B vein. At present the colliery will be a land sale works, until a track is laid down to connect it with the main line. Five men are employed ; one mule, 5 wagons, 10-horse power engine and one boiler in use.

No. 6.—Diamond.—*Alfred Bancroft, Operator.*

This colliery is situated in Ashland, on lands of the P. R. C. and I. company. It consists of a drift, opening the south dip of the Diamond vein, with 80-yard breast runs, having a bad top rock overlying the seam.

Ventilation is produced by natural currents, furnishing a good supply of air. A 15-horse power engine, with one boiler, is used, employing nine hands. The coal is principally mined for domestic use.

No. 7.—Enterprise.—*J. R. Cleaver, Operator.*

This colliery is situated north of Ashland, on lands of the P. R. C. and I. company. It consists of a slope sunk 85 yards deep on the south dip of the 6 foot vein ; east and west gangways, with chutes, breasts and headings, are working.

The mine is ventilated by natural currents. Breast runs are 68 yards up the pitch. The mine is supplied with a second outlet, both for miners and mules to travel in. Two engines, 55-horse power, with four boilers, are in use ; a 10-horse pump is used for drainage ; 46 men and 10 boys are employed ; 8 mules and 10 wagons used, and 1,250 yards of track are laid.

No. 8 —Elmwood.—*P. R. C. and I. Co., Owners and Operators.*

This colliery is situated west and in Mahanoy City. It consists of a slope 90 yards deep on the south dip of the D vein. A tunnel 14 yards south opens the E vein in 16 feet of coal, with gangways open east and west ; 14 breasts are working here.

Ventilation is very good, and the mining of coal and general condition of the colliery is good. The breast runs 65 yards. A 20-horse power fan is used for ventilation, which gives satisfactory results ; 5 engines, 364-horse power, with 10 boilers, are in use ; 108 men and 35 boys are employed ; 11 mules, 19 wagons and 700 yards of tracks are used. Monthly shipments, 4,500 tons.

No. 9.—Tunnel Ridge.—*G. W. Cole, Operator.*

This colliery is situated in Mahanoy City, on lands of the Philadelphia and Reading Coal and Iron Company, and for ten years has been extensively operated. It consists of a slope lift and drift level colliery, opening the D vein on its north dip, with breast runs of 85 yards, supported by a 12 yard thick chain pillar. The E vein is opened by 40 feet of a tunnel, with east and west gangways open, with 85 yards of runs ; some breasts are worked out to the surface, which greatly assists ventilation. A second outlet is

driven on a half pitch; all the work in the mine has been practically managed throughout.

Ventilation is produced by the operation of a 20-horse fan, and affords a satisfactory supply.

Nine engines=394-horse power, with 15 good boilers, are in use; drainage has been effected by 4 8-inch pumps, and 2 pumps of 10-inch caliber, giving good satisfaction; 162 men and 52 boys are employed; 22 mules, 47 wagons, and 4,100 yards of track are laid.

Monthly shipments will average 10,000 tons.

No. 10.—St. Nicholas.—*Frank Donaldson, Operator.*

This colliery is situated at St. Nicholas, two miles west of Mahanoy City, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of slope and pumpway sunk 120 yards deep on the south dip of the E vein, on a 45° dip, in 16 feet of coal, with east and west gangways open, and a second outlet for men and mules, with 20 yards of coal to support the breasts, as a chain pillar. The water level is worked out on this colliery. A tunnel 85 yards north opens the D vein, with east and west gangways open, with breast runs of 90 yards long; its western panel is worked out. A tunnel south, —— yards, opens the F vein, which tunnel is continued still further south to the G vein, and opened gangways in it. A dam in the Primrose or G vein retains the water during the day time, but flows off to the sump at night time to be taken up by the pumps. I find all the mines worked in a practical manner, and very well conducted.

Ventilation is effected by a 20-horse fan, which is practically conducted through the mine, giving a full supply of good air.

Seven engines=268-horse, with 16 good boilers, are in use; 3 pumps are in operation for drainage; 137 men and 30 boys are employed; 24 mules, 76 wagons and 2,760 yards of track are in use.

Monthly shipments will average 10,000 tons.

No. 11 —Suffolk.—*Suffolk Coal Company, Operators.*

This colliery is situated east of St. Nicholas, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a slope and two drift openings. A drift opens the G vein on the west, which works are finished; a tunnel thence to the E vein, which is open east and west, and are resorting to robbing out pillars. The slope is sunk on the G vein, 200 yards deep, in which a pumpway is made, with east and west panels opened; this coal will be mined in two lifts; the slope lift has but recently gone into operation.

Ventilation has not yet been properly established, but is sufficient to afford relief.

Five engines=184-horse power, with 12 good boilers, are in use; 92 men and 61 boys are employed; 16 mules, 40 wagons, and 3,779 yards of track are used.

No. 12.—Gilberton.—*Bolen Coal Company, Operators.*

This colliery is situated at Gilberton, on lands of Gilbert and Sheafer. It consists of 2 slopes sunk on the E vein, dip 48° south; its first lift is exhausted of coal. The pump slope is used for a second outlet for miners.

The second lift (new) has been opened into panels and breastings, with runs of 83 yards up to the first lift gangway, and out to the surface.

Ventilation is produced by a 20-horse power fan, which is fully effective for all practical purposes.

Five engines=184-horse power, with 12 boilers, are in use. One hundred men and 60 boys are employed; 12 mules, 40 wagons and 2,000 yards of track are used. Monthly shipments 12,000 tons.

No. 13 —Draper.—*Hickory Coal Company, Operators.*

This colliery is situated at Gilberton, on the Gilbert and Sheafer lands. It consists of two slopes sunk on the north dip of the E vein, in 40 feet of coal, 210 yards deep in two lifts, with east and west gangways open, with breast runs of 70 yards, leaving 20 yards of a chain pillar for their support. The vein generates large quantities of carburetted hydrogen gas, requiring great care in its safe management. A third lift is sunk with east and west gangways open, and an air-hole has been driven clear out to the surface.

Ventilation is effected by a 20-horse fan, which is fully adequate to produce a sufficient supply of fresh air for all practical use.

Nine engines=345-horse power, with 15 good boilers, are in use. One hundred and fifty men and 58 boys are employed; 24 mules, 80 wagons and 2,802 yards of track are in use. I consider this colliery to be well managed, and find it in good order.

No. 14.—New Boston.—*Walter, White & Cox, Operators.*

This colliery is situated at New Boston, south-west of Mahanoy City, on the lands of the Middle Lehigh Coal Company, on the Broad Mountain. It consists of 2 slopes sunk on the south dip of the B vein, on a 33° dip, with gangways open east and west; 35 breasts are working on it, with 90 yards of breast runs; counters are also worked in an upper level, with breast runs of 57 yards. There are 2 outlets for men to travel in for safety. All the workings in this colliery are done in a practical manner as regards strength and safety.

Ventilation is effected by a 20-horse power fan, which renders full satisfaction in the manner of its circulation and discharge of air to the surface. A tunnel, 106 yards south, opens the E vein in 12 feet of coal. The north dip has been cut, and also the D vein, on which gangways have been opened.

A 10-horse power fan ventilates this district. A strong top-rock covers all these veins, which renders mining a safe operation.

Eight engines=862-horse power, with 12 good boilers, are in use. Two hundred and sixty men and 42 boys are employed; 25 mules, 94 wagons and 2,150 yards of tracks are used in this colliery. Monthly shipments will average 12,000 tons.

All of which machinery, engines and tackle are in excellent condition. One person has been killed, being crushed between wagons.

No. 15.—West Big Mine Run.—*Taylor & Steinhilbert, Operators.*

This colliery is situated at Big Mine Run, on lands of the Locust Mountain Coal Company, and has been 21 years in active and profitable operation. It consists of 3 drifts open in west, a tunnel 268 yards north opens the D vein in 16 feet of coal, with east and west gangways open, with runs of 102 yards, with 5 yards of a chain pillar to support the upper gangway, in the centre of this tunnel a second inlet is open for ventilation.

No. 2 drift generates carburetted hydrogen largely, but ventilation produced by a 25-horse fan is sufficient to control it by care and attention; No. 3 drift forms an inlet for ventilation, and its outlet is connected with the Hazle Dell D drift gangway of R. Gorrell's in its south dip. This district is being ventilated by natural means. There are 4 lifts worked in this vein, and all are under practical management, and well conditioned; 5 engines=190-horse power, with 13 boilers are in use; 124 men and 54 boys are employed; 29 mules; 120 wagons, and 4,000 yards of tracks are used in the colliery.

Casualties in 1874 are as follows:—Patrick Farrell, killed by a fall of coal; John Naun, killed by a fall of coal; Edward Heckey, killed by a fall of coal; Michael Whaten, killed by a fall of prop timbers. The vein being flat, makes mining dangerous, and practical men should be selected for mining it as the top rock is soft and slatey.

No. 16.—Union, (Columbia county.)—*Judge Ryan, Operator.*

This colliery is situated 2 miles north of Ashland, on lands of Girard heirs. It has been 13 years in active operation. It consists of a drift operation opening the E vein in 21 feet of coal, its gangway is 2,640 yards long. Mining, at present, has been confined to robbing out pillars and loose coal. A tunnel driven south in this gangway opens the D vein in 16 feet of coal, on its north dip, here extensive mining has been carried on, with breast runs of 100 yards.

A new slope is now sinking, which will, when completed, be one of the most productive collieries in the country. The mines throughout have been managed with a view to permanency and economy, and the safety of miners.

Ventilation is effected by the operation of a furnace and natural currents, but being practically conducted it has fully accomplished the desired results; 5 engines=175-horse power, with 9 good boilers, are in use. I find all their machinery and appointments in excellent condition; 137 men and 33 boys are employed; 30 mules, 56 wagons, 2,740 yards of tracks are in use. A locomotive has been substituted for mule power for doing the distant haulage; monthly shipments will average 10,000 tons. We must express a favorable opinion for the future remunerative capacity of this colliery.

No. 17.—Primrose.—*C. B. Nevills, Operator.*

This colliery is situated east of Mahanoy City, on lands of the Lehigh Valley Railroad Company. It consists of a drift opening the D vein north-east, veering to east, south-east and south-west and west, and over 2,500 yards in length, all of which has been worked out. A tunnel 60 yards south opens the north dip of 6 veins, and is continued to the B vein. The E vein has gangways opened and extensively worked; the J vein is not marked to any extent in its western gangway, but 7 breasts have been

working in its eastern gangway. The D vein is worked with 7 breasts in operation. A slope has been sunk on the G vein 125 yards deep, and approaches the basin in 12 feet of coal, 15 breasts are working in this department, giving 42 breasts in operation, and removing loose coal and pillars.

Ventilation is effected by a 20-horse fan. Many of these departments are well ventilated, and improvements are now making to have the whole thoroughly free from noxious air, healthy and safe.

Six engines=180 horse power, with 8 good boilers, are in use; 110 men and 42 boys are employed; 14 mules, 50 wagons and 3,378 yards of tracks are used.

Casualties —One man was killed by a fall of coal and one man injured.

No. 18.—Glendon.—*J. B. Boylen, Operator.*

This colliery is situated at Mahanoy City, on lands of the Lehigh Valley Railroad Company. It consists of a slope operation, in two lifts on the 7 foot vein, with east and west gangways open. Extensive operations have been conducted here for some thirteen years. A tunnel opens the D vein, which was found so contracted by a rock fault as to deem it unprofitable to work it. Are driving a tunnel to the B vein. All top lifts are nearly exhausted of coal. A new lift has been sunk in the slope this summer which will open a large field of coal for some years to come.

Ventilation is produced by a 20-horse fan, which gives general satisfaction; but many openings runs out to the surface.

Four engines=95-horse power, with 9 boilers, are in use; 70 men and 25 boys are employed; 8 mules and 48 wagons, with 800 yards of tracks, are used.

Monthly shipments, 3,500 tons.

Casualties during the year —One man got killed by the slope gates falling on him, and one man injured. I consider this one of the best managed collieries in the district.

No. 19.—Lawrence.—*Lawrence & Merkel, Operators.*

This colliery is situated at Frackville Planes, on lands of Gilbert and Sheafer. It consists of a slope operation extensively worked for thirteen years. The E vein is open on its north dip. A deep wash of gravel covers the vein, which falls into the mine through the breasts, making travel dangerous. The slope is sunk in two lifts. The new and old lifts communicate with air-holes for ventilating purposes. Breast mining is extensively carried on in the new lift and practically conducted throughout.

Seven engines=370-horse power, with 12 boilers, are in operation; 125 men and 50 boys are employed; 16 mules, 75 wagons and 2,560 yards of tracks are in use.

Ventilation is good and practically managed.

Casualties during the year.—One man was killed by being tossed out of a descending wagon in riding down the slope.

No. 20.—KEYSTONE.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Locustdale, but in Schuylkill county, west of of Ashland. It consists of two slope openings, one of which is being used for coal, the other for pumps, men and material and a second outlet. Very extensive mining has been carried on here for some eighteen years, well managed and practically developed, with a view to strength and durability. The upper lifts and water lines have been nearly exhausted of coal. All the breasts are open with two schutes to each. Strong chain pillars are left to support the upper gangways and to secure thorough ventilation, as carburetted hydrogen gas is largely generated, requiring considerable attention in its management.

Ventilation is effected by the operation of a 40-horse fan communicating with the different panel currents and discharging it safely on the surface.

Eight engines=775-horse power, with 19 boilers, are in active use; 113 men and 50 boys are employed; 18 mules, 33 wagons and 3,100 yards of tracks are in use; 120 good safety-lamps are used.

Monthly shipments, 5,000 tons.

Casualties during the year.—One person had been killed by being crushed between wagons.

The recommendation of the colliery is favorable.

No. 21.—GIRARD.—*Messrs. Beatty & Garretson, Operators.*

This colliery is situated east of Girardville, on lands of the Girard heirs. It consists of two slopes, one north and one south on the E vein, in 25 feet of coal. South and north tunnels are open from the 7-foot vein, with extensive breastings opened. The E vein is opened by a tunnel north to its south dip, in 25 feet of coal, in which a pump slope is driven out making it available for a second outlet, with breast runs 115 yards up the pitch. Large quantitities of fire-damp are generated in the mine, requiring the most careful attention in its management. The coal slope will be connected with all the different levels for getting out the coal, which is being hoisted in gunboats or large iron tanks, self-acting dischargers. The heavy gravel wash that overlies the veins makes it troublesome to support the surface, requiring great care in establishing permanent supports of coal pillars for this purpose. Twenty-eight breasts are working, and the removing of pillars and loose coal is carried on to some extent.

Ventilation is produced by the operation of a 40-horse fan, which, together with other appliances, will afford an ample supply of air for all practical purposes, if carefully managed.

Eight engines=469-horse power, with 22 boilers, are in use; 163 men and 25 boys are employed; 20 mules, 52 wagons and 2,116 yards of tracks are used.

Monthly shipments will average 10,000 tons.

Casualties.—The fire boss was found suffocated by gas in the mine, on the morning of December 1, 1874.

No. 22.—WEST SHENANDOAH.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated west of Shenandoah City. It consists of a slope 85 yards deep in the D vein, south 15° dip, in 12 feet of coal. The breasts

are worked by slant switch-backs, 20 of which are working. Measures have been taken to sink a new lift, which, when completed, will constitute this one of our best collieries.

Four engines=172-horse power, with 4 good boilers, are in use; 85 men and 23 boys are employed; 10 mules, 28 wagons and 2,760 yards of tracks are in use.

Ventilation is medium, but the colliery generally is in good condition.

No. 23 —Philadelphia and Reading Coal and Iron Company, (New Slope)—*Philadelphia and Reading Coal and Iron Co., Owners and Operators.*

This new colliery is situated midway of the Turkey Run and West Shenandoah collieries. It consists of a slope sinking on the E vein on its south dip 35°, intending to open an extensive colliery by sinking it 120 yards under the water level.

A new breaker is in course of construction, and all the necessary improvements are under way, giving employment to some 50 hands. We cannot give any extended report of its present condition, but are certain of its becoming one of our most prominent collieries in a few years.

No. 24.—Plank Ridge.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This Colliery is situated in Shenandoah City. It consists of a shaft with double cage way and pump chamber, and an up-cast airway permanently partitioned off. This colliery has been extensively mined these last 13 years. A slope has been sunk in two lifts of 120 yards, and mining confined to robbing out pillars and loose coal; this slope is sunk so deep as to be utilized for working 4 lifts of coal in it. 18 breasts of coal are working on its top lift in its east gangway, and 21 breasts are working in its second east gangway; its western districts are at present idle.

Ventilation is produced by a 30-horse power fan, and by its operation a plentiful supply of air is furnished for all practical purposes. I do favorably recommend the practical as well as the economical management of this colliery.

Eight engines=264-horse power, with 17 good boilers are in use; 300 men and 58 boys are employed; 23 mules, 120 wagons, 4,700 yards of track are used. Monthly shipments will average 12,000 tons per month, as 40 breasts of coal are working at present. Casualties during the year resulted in the death of 4 men.

No. 25.—Indian Ridge.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Shenandoah City. It consists of a shaft sunk 103 yards in the south dip of the E vein; 2 cage ways and a pump way are erected in this shaft; the coal is 24 feet thick; 18 breasts are working in its eastern panel with a run of 100 yards each, and 6 breasts are working in its western panel with 80 yards run; 10 breasts are working in its east plane gangway with runs of 80 yards each, and 7 breasts are working in its

west plane with runs of 80 yards. There are 4 breasts working in its No. 2 plane east, and three breasts working in its No. 2 plane west=to 42 breasts.

Ventilation is produced by the operation of a 40-horse fan, and although practically applied, the excavations being so extensive, ventilation is not quite satisfactory throughout, but measures have been taken that will remedy this defect.

Eight engines=428-horse power, with 18 boilers in good condition in use; 342 men, 58 boys are employed; 19 mules, 100 wagons, 7,500 yards of track are used. No fatal casualties recorded during the year.

No. 26.—Honey Brook, (Nos. 1, 2, 3 and 4.)—*Honey Brook Coal Company, Owners and Operators.*

This colliery is situated in Schuylkill county, near Audenried. It consists of four slopes, opening the Wharton and E veins.

No. 1 slope is 279 yards deep in three lifts, on the E vein, on a dip of 15°, and extensively worked for some 15 years, and named the Baltimore workings, both working the E and Wharton veins by a short tunnel.

No. 2 slope coal is raised in No. 3 slope, it being the main pump slope for draining all the colliery. This district is ventilated by a furnace.

No 3 slope has been 8 years in operation, and operated by the Wilkesbarre and Lehigh Coal Company. Three lifts of 243 yards on a 30° south dip. A tunnel from this slope opens the Wharton vein; 22 breasts are working on the north and south dip of the Wharton gangways, and 11 breasts are working on its west counter gangway. Ventilated by a furnace.

No. 4 slope has been 4 years in operation; 5 breasts are working on its east gangway, with runs of 100 yards each, and 20 breasts are worked on its west gangway, with runs of 100 yards each; thence 90 feet of a tunnel opens the north dip of the Wharton vein, with 20 breasts working in it, and 6 breasts working on its west gangway, thus making 124 working breasts, with what pillars and loose coal, constitutes this one of the largest producing collieries in the county, and I do recommend it for practical work and ventilation, and its good management, to have no superior in the district.

Twenty-four engines=2,000-horse power, with 60 boilers, are in use; 477 men and 267 boys are employed; 76 mules, 195 wagons, and 3,400 yards of track are used.

Monthly shipments of the four slopes=28,000 tons.

No. 27.—Hamon Colliery.—*Moody, Gross & Co., Operators.*

This colliery is situated east of Girardsville, on the lands of Girard heirs. It consists of 5 drifts and a slope. These drifts are open on the south dip of the mountain in separate levels, on the D vein. No. 1 drift has 12 breasts working in it. No. 2 drift has 12 breasts in it, with 120 yards of a run. No. 3 drift has 20 breasts working in it, with 65 yard runs. No 4 plane drift is open only 40 yards, all of which drift workings are nearly exhausted, and ventilated by natural means.

The slope is sunk 125 yards under the water level on the E vein, in 25 feet of coal, with 6 breasts working in its east gangway, and 8 breasts working in its west gangway, upon which a 40-horse power fan will be erected, with 100 yard runs on each. At present the ventilation is effected by the exhaust steam of the pumps.

Eight engines=520-horse power, with 19 boilers, are in operation; 310 men and 141 boys are employed; 41 mules, 150 wagons, and 4,000 yards of track are in use. Monthly shipments=21,000 tons. Casualties during the year: One person was killed by a fall of coal.

No. 28.—Stanton.—*Miller & Hock, Operators.*

This colliery is situated at Lower New Planes, on lands of Gilbert & Sheafer. It consists of a slope sunk 131 yards deep on the south dip of the E vein, in 35 feet of coal. 8 breasts are working in the east gangway with a run of 100 yards A counter gangway is open over this, and the coal of which is dumped into the lower breasts and loaded with it; east of the slope, a second outlet is driven out to the surface for air and a traveling road. 10 breasts are working in its west gangway. Owing to the heavy gravel wash that covers the vein, the breasts fell in and in several instances brought down the miners' houses, though no lives were lost by such crushes. Connections have been made with Bear Ridge colliery westward. All manner of work done I consider safe, and ventilation is effected on a practical plan.

Seven engines=245-horse power, with 12 good boilers in use; 150 men and 40 boys are employed; 10 mules, 41 wagons and 1,910 yards of track are used. Monthly shipments will average 10,000 tons.

No. 29.—Preston, No. 1.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Girardsville. It consists of a slope on the Orchard vein in 8 feet of coal on its south dip, with east amd west gangways open. Mining is chiefly confined to robbing out pillars and loose coal.

No. 30.—Preston, No. 2.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is also in Girardsville. It consists of a slope sunk 115 yards deep on the north dip of the E vein in 25 feet of coal, with gangways open east and west. 5 breasts are working on its east gangway, and 32 breasts are working on its west gangway, with 80 yards of runs. A strong chain pillar is left between the drift level to support that gangway for use of drainage. The character of all the work done is considered safe.

Ventilation is produced by a 20-horse power fan, and find it practically applied and fully effective to produce a full supply of air. 99 yards of a tunnel opens the D vein, which has east and west gangways open in it, working 20 breasts in these panels, and a counter gangway is also in operation, ventilated by a 20-horse power fan.

No. 31.—Preston, No. 3 —*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Girardsville. It consists of slope sunk 95 yards under the water level on the north dip of 74°, with east and west

gangways open; a pump slope has been driven out to the surface, using it also for a second outlet for miners; 15 breasts are working on its lift; strong supports are left in the mine at a point where the through line railroad passes over the works; twenty-seven breasts are working on its western panel, the gangway veering round from north to south, where a tunnel will be driven to the Hunter Basin. The present owners have made excellent improvements on this estate since it came into their possession.

No. 32.—Preston, No. 4.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators*

This colliery is situated in Girardsville. It consists of a tunnel driven 337 yards south to the E vein, in 25 feet of coal, with east and west gangways open. Mining is generally confined to robbing out loose coal and pillars.

No. 33.—East Big Mine Run.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Big Mine Run, north-east of Ashland. It consists of two slopes sunk 308 yards on the south dip of the E vein, on 42° south, one for the use of coal and the other for a pump slope, a second outlet and a traveling way for miners, east and west gangways are open on this level, making 2,719 yards of gangways; 8 breasts are working on it; strong chain pillars are left to support the upper gangway, in order to preserve their drainage; all the work done has been managed in a practical manner for safety and durability.

Ventilation is produced by the operation of a 25-horse fan. The circulation of the air currents is so well arranged as to leave no apprehension of danger from explosions under ordinary care. I found 30,000 cubic feet of air in circulation.

Seven engines=920-horse power, with 25 boilers are in use. A Cornish steam pump, 24-inch cylinder and 20-inch column. A Thatcher steam-pump, 26-inch cylinder and 16-inch column. Two of the Blake pumps, 26-inch cylinder 8 and 8 inch column.

The D vein is open east of the slope, with 25 breasts working on it with 80 yards of runs; a self-acting plane opens another new range of works, having 5 breasts working on it. The coal of these divisions are all prepared at one breaker; 200 men and 40 boys are employed; 118 safety-lamps are in use in the miners' hands, as large quantities of carburetted hydrogen gas are evolved, great care and attention is required in their management. Eighteen mules, 54 wagons and 3,864 yards of tracks are in use. Monthly shipments, 10,000 tons.

No. 34.—Tunnel. — *Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated in Ashland. It consists of two slopes, one for coal and the other for pumps and a second outlet, and are 270 yards deep on the 7-foot vein. A tunnel north opens the E vein on its 64° dip, with east and west panels open, working chutes, breasts and headings vigorously. This colliery has been in operation 17 years, but lately has been

remodeled at heavy cost, in order to make it one of our best collieries. All the work done is excellently managed.

Ventilation is effected by 25-horse power and 40-horse power fans. Their practical application, and the manner in which the air currents are disposed in their circulation in and out of the different working places to their discharge, is approved of. The mine generates large quantities of noxious gasses, requiring great care in its management. I found 40,000 cubic feet in circulation.

Nine engines=945-horse power, with 32 boilers in use; a Cornish pump of 500-horse power, of two 24-inch columns; a steam pump of 150-horse power is used and needed for the drainage of the colliery.

No. 35.—Locust Run.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated one mile north of Ashland borough, in Columbia county. It consists of a slope 302 yards deep on the south dip of the E vein, in 21 feet of coal, and opened in east and west panels, working breasts chutes and headings extensively for the last nineteen years. Its eastern panel is 1,360 yards long, with 10 breasts working. The crushing of the gangway greatly impedes the progress of the working of the mine.

Ventilation is produced by a 20-horse power fan, The plan adopted for ventilation was practical, but the heavy crushings greatly interrupt its circulation. Large volumes of gas are given off in the mine, requiring great care and attention in its management.

Four engines=270-horse power, with 24 boilers, are in use; 2 steam pumps=400-horse power, with 16-inch and 12-inch columns, are used for drainage; 168 men and 42 boys are employed; 16 mules and 45 wagons are used.

No. 36.—Locustdale Slope.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery has been 19 years in active operation, situated at Locustdale, in Columbia county. It consists of two slopes, 338 yards deep on the south dip of the E vein. The pump slope is used for drainage, and for a second outlet for miners safety. East and west gangways are open; extensive operations have been carried on here ever since its commencement. Its east gangway is 1,000 yards, and are working 10 breasts, &c., with runs of 65 yards on the dip; its west gangway is 1,139 yards, with 6 breasts working, having 75 yards of a run. The character of work done is considered to be permanent and practically managed, and mining is a safe operation under ordinary care and attention.

Ventilation is effected by a 30-horse power fan, under its operation, satisfactory results have been obtained.

Eight engines=506-horse power, and 18 boilers, all in good order. A Cornish steam pump of 53-inch cylinder=500-horse power, is used for drainage; 169 men and 39 boys are employed; 15 mules, 43 wagons and 8,000 yards of track are used.

No. 37.—Continental.—*Lehigh Valley Railroad Company, Owners—R. Gorrell & Co., Operators.*

This colliery is situated in Columbia county, at Centralia. It consists of a slope 120 yards deep, on the E vein, 54° south dip, with east and west gangways open; the east gangway is 1,700 yards long, and are working 11 breasts in it, with 100 yards of runs; the west gangway is 500 yards long, with 4 breasts working; the gangway crushed in and obstructed further operation. This case must be charged to the incompetency of the person in charge of the mining.

Ventilation is but medium. A tunnel has been driven to the D vein, and gangways are now being opened in it; from the character of the work done, mining is considered a safe operation.

Seven engines=269-horse power, with 17 boilers, are used; 3 pumps, with one 16, one 17 and one 12-inch columns, are used for drainage; 100 men and 28 boys are employed; 15 mules, 30 wagons and 2,600 yards of track are used.

Monthly shipments will average 5,000 tons.

Casualties.—During the year one person was killed by the breaking of the slope rope, and three were injured by the explosion of a keg of powder.

No. 38.—Malvern.—*Lehigh Valley Railroad Company, Owners and Operators.*

This colliery is situated near Mahanoy city. It consists of a slope and a tunnel opening. The slope is sunk on the south dip of the D vein, with east and west panels open. Two breasts are worked on its eastern panel, and an outcast open to the surface; on this level a tunnel north opens the B vein, and the 7 foot vein also. The water level tunnel opens 4 veins with west gangways opened; 7 breasts are working on this tunnel at present; 4 breasts are working on the B vein; here a 30-yard pillar has been left to separate it from the Maysville colliery, which colliery is standing full of water. A new breaker has been built this year for the accommodation of the different railways connected at this point.

Ventilation is effected by natural means which is only medium.

Two engines, 80-horse power, and a 40-horse power steam pump, with 7 good boilers, are in use; 80 men and 22 boys are employed; 10 mules, 60 wagons, and 2,180 yards of tracks are in use.

No. 39.—Bear Run.—*Philadelphia and Reading Coal and Iron Company, Owners.*

This colliery is situated west of St. Nicholas. It consists of a slope 232 yards deep on the south dip of the E vein, with East and west panels opened. Eight breasts, chutes and headings are working in its east panel, with 90 yards of a run, and 10 breasts, etc., are working in its western panel. All the work done I consider safe.

Ventilation is produced by the operation of a 20-horse power fan, which which is practically applied, and affords an ample supply of good air for circulation.

Five engines=225 horse power, with 2 steam pumps and 8 boilers are in use; 15 mules, 50 wagons and 2,313 yards of tracks are used; 116 men and 25 boys are employed.

Monthly shipments, 9,000 tons.

I find this colliery in excellent condition.

No. 40 —Thomas Colliery.—*Thomas Coal Company, Operators.*

This colliery is situated in Shenandoah City, on lands of the Philadelphia and Reading Coal and Iron company. It consists of two slopes sunk in the E vein on a 42° dip, in two lifts, with east and west gangways opened. The east panel is 750 yards long. A plane is driven up to the counter gangway; six breasts are working on this counter, with 95 yards of a run. The west gangway is 1,560 yards long, with 12 breasts working in it. A tunnel driven north to the Skidmore or D vein, of 67 yards, opens this vein east and west, and opening out an air-hole.

A new slope has been sunk 223 yards deep in its second lift, with gangways open in east and west, having an 80 yards run. All this work is practically managed and considered a safe working place.

Ventilation is effected by a 20-horse power fan; under its operation the air currents are properly conducted through the whole mine, out to its discharge.

Nine engines=equal, 550-horse power, with 16 boilers in use. One 12 inch column steam pump for drainage; 285 men and 48 boys employed; 16 mules, 83 wagons and 2,900 yards of track are laid. Monthly shipments, 10,000 tons.

Remarks.—This colliery is excellently managed throughout; a new breaker has been built this year, from which all the coal will be shipped hereafter.

No. 41.—William Penn Shaft.—*Seifert, M'Means & Co., Operators.*

This colliery is situated four miles west of Shenandoah City, on lands of Gilbert & Sheafer. It consists of a shaft sunk on the E vein 96 yards deep, partitioned off for two cage and a pump way, with extensive panels open in east and west; both panels are each 1,700 yards long. 41 breasts are open; a 12 yard chain pillar supports the upper gangway for draining off the water from the old levels; its west gangway is 900 yards long, and are working breasts on it with 75 yards of a run. A self-acting plane is open up to the counter where 15 breasts are working. The west counter gangway is 650 yards long, and are working 12 breasts on it. All the work done here has been practically managed with a view to strength, economy and safety.

Ventilation is effected by a 20-horse fan; the air is properly conducted into the mine and distributed into the working places, traversing the different panels, until its discharge at the surface.

Seven engines=240-horse power, with 16 boilers are in use; one double acting pump used for drainage; 250 men and 60 boys are employed; 12 mules, 150 wagons and 3,250 yards of track are in use. Monthly shipments, 14,500 tons.

No. 42.—Girard Mammoth.—*Frank Donaldson, Operator.*

This colliery is situated at Raven Run, on lands of the Girard heirs. It consists of a tunnel driven north to the D vein; its west gangway is 1,650 yards long; a tunnel south opens the E vein. All mining in these tunnel works is confined to robbing out loose coal and pillars. A slope has been sunk 135 yards deep on the D vein; its east panel is 1,180 yards long, with 16 breasts working in it. The character of all the work done is considered safe and permanent.

Ventilation is only medium.

Seven engines=230-horse power, with 19 boilers all in good condition; 121 men and 52 boys are employed; 5 mules, 84 wagons and 2,680 yards of track are in use. Monthly shipments, 8,000 tons.

Casualties during the year—one person had been killed by a fall of coal.

No 43—Delano Colliery.—*Atkinson & Co., Operators.*

This colliery is situated near Delano, on lands of the Lehigh Valley railroad company. It consists of a tunnel opening the 7-foot vein. A slope has been sunk on the G vein with east and west gangways opened; the vein rises on its west dip; a counter gangway is opened in east and west, with 8 breasts working in this counter with runs of 100 yards, and in a large flat of coal. Its north, east and west gangways are run in 170 yards, with 4 breasts working on them. I found the management of the mine well conducted.

Ventilation is effected by a 20-horse power fan; a deficiency of air in the west counter makes it difficult for miners to work in the smoke. Otherwise, ventilation is tolerably fair.

Four engines=247-horse power, with 9 boilers in use; 2 steam pumps are used for drainage; 60 men and 16 boys are employed; 8 mules, 30 wagons and 2,300 yards of tracks are used. Monthly shipments, 5,200 tons.

No. 44.—Turkey Run.—*Hass & Brenizer, Operators.*

This colliery is situated west of Shenandoah City, on lands of Messrs. Gilbert & Sheafer. It consists of a tunnel 125 yards south, opening the E vein in 40 feet of coal; gangways are open on the north and south dip of the anticlinal, working 6 breasts, &c. A tunnel 96 yards south, opens the 7-foot vein in 27 feet of coal, and working 9 breasts in its east gangway. Work is suspended on its west gangway. 75 yards of a plane opens a counter level, where 3 breasts are working, and 10 breasts are working in its west gangway. 125 yards of a plane opens a second counter level, with 7 breasts working, and 10 breasts are working in its west gangway with 100 yards run. A new slope has been sunk inside on the E vein gangway. 8 breasts are working on its west gangway, from which point an air-hole has been opened out to the surface. 3 breasts are working on the bottom lift of the east gangway. 7 breasts are working on the G vein gangway drift, thus making 53 breasts, each 10 yards wide, supported with 7 yard pillars. This extensive colliery throughout all its panels, gangways, &c., has been so well managed as to make mining a safe operation under ordinary care.

A 20-horse power fan for ventilation has been erected, under whose operation a plentiful supply of air is furnished the men. 250 men and 50 boys are employed; 23 mules, 125 wagons and 4,537 yards of track are in use.

Four engines=120-horse power, with 5 good boilers, are in use. Monthly shipments, 14,000 tons.

No. 45.—Colorado.—*Philadelphia Coal Company, Operators.*

This colliery is situated east of Girardsville, on lands of the Girard heirs. It consists of 3 drift openings and a new slope. Mining in these drifts is principally confined to robbing out pillars and loose coal; the E vein is 40

feet thick. The slope is sunk in the 7-foot vein in a 70° north dip. A seven ton locomotive is used to re-place mule power in the mine and outside, as the coal hoisted in the slope is only raised to the drift level; here it is taken out to the breaker. This colliery is under the superintendence of Col. D. P. Brown, general manager and director, a gentleman of large abilities in mine management, a practical miner and mining engineer.

A 40-horse power fan is erected for ventilating the mines.

Sixty men and 25 boys are employed; 12 mules and 130 wagons, with 2,517 yards of track are in use. Monthly shipments, 8,000 tons.

Casualties.—One person was killed by falling out of a slope wagon, descending the slope, accidental, as per verdict rendered.

No. 46.—Centennial.—*G. M. Provost, Operator.*

This colliery is situated east of Centralia, in Columbia county, on lands of the Locust Mountain coal company. It consists of a slope sunk on the south dip of the E vein on a 54° dip, with east and west gangways open, in 25 feet of good coal, 5 breasts are working on the east panel, a counter schute has been driven up in the west panel, forming a new level, with 5 breasts working on it, thence, an air-hole is driven out to the surface, and has been used as a second outlet; character of the work done is considered safe.

Five engines=340-horse power with 14 boilers are used, 170 men and 35 boys are employed; 21 mules, 50 wagons, and 3,000 yards of track are laid; 3 16-inch pole pumps are used for drainage. Monthly shipments—— tons. No casualties during the year.

No. 47.—Copley Colliery.—*Lentz & Bowman, Operator.*

This colliery is situated north of Mahanoy city, on lands of the Lehigh Valley railroad company. It consists of 4 drifts; 14 breasts are working and are extending gangways, which are opened into the Foucht & Whittaker colliery, which panel has not been worked, pending a legal decision. Counter gangways have been opened with 4 breasts working on it; a new drift has lately been opened with 3 breasts working on it and some stant breasts, together with robbing out the pillars, etc., of the B vein; mining is chiefly confined to robbing out pillars, etc., in the south dips.

Ventilation is effected by natural means, and find it only medium.

Two engines=120-horse power, with 4 good boilers, are used; 187 men and 30 boys are employed; 20 mules, 83 wagons and 4,150 yards of tracks are laid; monthly shipments 10,000 tons. No casualties during the year.

I found the colliery in excellent condition as to the durability and safe mining and drainage, reflecting credit on its managers.

No. 48.—Ellengowan.—*Philadelphia and Reading Coal and Iron Company Operators and Owners.*

This colliery is situated at Mapledale. It consists of a drift on the E vein, now idle. By a cross-cut the upper twin vein of the E, is open and 10 breasts are working on it; the north split do., is nearly exhausted except the robbing of pillars; 15 breasts are working on its west gangway. The

west counter work is discontinued, except the driving of a new plane, to supply the plane of a counter chute.

A shaft 110 yards deep is sunk on the middle split of the E vein. All coal mined here is prepared at the Knickerbocker breaker together with the coal of that colliery; east and west counters are open with some small work going on. A tunnel has opened the No. 4 bottom split of the E vein, and are working 4 breasts on it. Another tunnel opens the No. 2 top split of the E vein, but as yet no breasts have been opened; 5 breasts are working on its west top split, with 80 yards run; this tunnel is continued still further to the G vein. All the work done is considered safe and very creditably managed.

Ventilation is effected by a 20-horse power fan, and under its operation a full supply of air is produced and kept in circulation.

Five engines=160-horse power, with 6 boilers, are in use, all in good condition; 264 men and 85 boys are employed; 36 mules, 110 wagons and 16,066 yards of track are used; monthly shipments, 9,000 tons.

No. 49.—KNICKERBOCKER.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated west of Mapledale It consists of a slope and drift openings. The slope is sunk on the G vein, with east and west panels opened, the coal of which being nearly exhausted. A cross-cut opens the north dip of the G vein, with east and west gangways opened, a counter lift is open by a plane on which gangways are now opening Both these districts are ventilated by the same air currents, passing out to the surface in an air hole open on this panel, upon which a 20-horse power fan will be erected.

The north dip of the top seam is opened by a tunnel, and continued to the lower bench of the E. vein; have commenced working the lower split of the E vein at water line in 11 feet of coal, with 5 breasts working.

Six engines=120-horse power, with 9 good boilers in use; 100 men and 29 boys are employed; 14 mules, 70 wagons, —— yards of track in use. I found the colliery in good condition.

No. 50.—YEATSVILLE.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated north of St. Nicholas. It consists of two slopes sunk in the G vein, in 14 feet of coal. Mining in No. 1 slope is principally confined to robbing out pillars, and this panel is apparently illy managed. No. 2 slope constitutes a second lift of 180 yards deeper than No. 1, having opened east and west gangways, with 6 breasts working on the west side, an up-cast thence opened into the No. 1 level being used for ventilation. A locomotive engine is used in the E vein water level to do the haulage from the Barry colliery. A tunnel north opens the 10-foot vein, and has east and west gangways opened on it, which tunnel has been continued still north to the D vein, where 11 breasts are working; its west gangway has 11 breasts working—in all 28 breasts. The character of all the work done is not successfully managed.

Ventilation is produced by the operation of a 20-horse power fan, giving satisfactory results.

No. 51.—Furnace Colliery.—*Atkins & Bros., Operators; Gilbert & Sheaffer, Owners.*

This colliery is situated near Gilberton. It consists of a tunnel opened in north to the D vein, from which nearly all the coal has been extracted.

Forty-two yards of a tunnel still farther north opens the E vein on its south dip, and the coal is nearly all mined out. A flat counter gangway has been opened, and this coal is nearly exhausted; 2 breasts are working on this flat at the west side, and two more breasts in its east gangway. A tunnel opens the B vein in 12 feet of coal, cutting both north and south dips. A locomotive will be substituted for mule power to do the haulage

One engine=25-horse power, with two boilers, are in use at the breaker 89 men and 29 boys are employed; 13 mules and 37 wagons are in use.

Monthly shipments, 4,162 tons.

No. 52.—Boston Run.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated south of Gilberton. It consists of a slope sunk on the North dip of the E vein, in 40 feet of coal, and opens an east gangway on the bottom split of 1,038 yards, and 202 yards on the top split of the E seams; 3 breasts are working in this panel, with 90 yards of a run each. Six breasts are working in the top split, west side. Mining in its western panel is confined to robbing out loose coal and pillars. A tunnel south opens the 7-foot vein, with 9 breasts working in it, and 4 breasts working in its west panel, with 90 yards of runs.

Ventilation is effected by natural currents traversing the different panels, and supplies considerable good air.

Eight engines=250-horse power, with 15 boilers in use, employing 162 men and 38 boys; 20 mules, 54 wagons and 3,805 yards of tracks are used.

Monthly shipments, 7,000 tons.

No. 53.—Lost Creek Colliery.—*Philadelphia Coal Company, Operators; D. P. Brown, General Manager and Engineer.*

This colliery is situated at Lost Creek. It consists of a double slope sunk on the south dip of the E vein, in 40 feet of coal. Its east panel is 2,600 yards long, having a return air-course along its whole distance; 25 breasts are working on this panel, with 80 yards of a run; 7 counters are worked in separate panels, according to plans of Mr. Brown for economically working the E vein; the west panel is exhausted of coal, except robbing out of pillars. The colliery is in a highly creditable condition.

No. 54.

A new slope is in course of sinking named No. 2, at a distance of 100 yards.

Ventilation is effected by the operation of a 25-horse fan, practically conducted throughout the mine into and out of its discharge.

Ten engines=330-horse power, and 16 boilers are in use; 2 steam pumps=200-horse power, are used for drainage; 260 men and 40 boys are employed;

16 mules, 70 wagons and 5,400 yards of tracks are in use; 2 locomotives are substituted for mule power, which is a great adjunct to a colliery of this class

Monthly shipments, 10,000 tons.

No. 55.—Lehigh, No. 3.—*Philadelphia Coal Company, Operators; Col. D. P. Brown, General Superintendent.*

This colliery is situated west of Shenandoah City, on the estate of the Girard heirs. It consists of a slope sunk 110 yards deep on the south dip of the E vein, with east and west panels open, ventilated by a 20-horse power blowing fan. Counter gangways are also open, with outlet air-course driven along their distance for the passage of air. Seven breasts are working in the counter panel, all of which are worked by the run, and are now working two panel gangways.

Ventilation is effected by the operation of a 20-horse power fan, and find its results quite satisfactory.

Seven engines=256-horse power, with 10 good boilers, are in use; one locomotive used for haulage; one 16-inch column steam pump used for drainage; 168 men and 38 boys are employed; 10 mules, 50 wagons and 6,497 yards of tracks are used.

I can recommend this colliery as being well managed throughout.

No. 56.—Philadelphia Colliery.—*Philadelphia Coal Company, Operators; Col. D. P. Brown, General Superintendent.*

This colliery is situated west of Lehigh, No. 3, colliery, on lands of the Girard heirs. It consists of a new slope, now in the course of construction, employing 20 men. It is intended to open the E, D, 7-foot, and B veins in this new mine.

No. 57.—Koh-i-noor Shaft.—*R. Heckscher & Co., Operators.*

This colliery is situated west of Shenandoah City, on lands of Gilbert & Sheafer. It consists of a shaft sunk in the E vein, 140 yards deep, with very extensive operations, practically managed throughout.

The coal is 49 feet thick. Five breasts are working in its east panel. Mining in its west panel is at present suspended. Twenty breasts are working in its outlet gangway, with runs of 110 yards each, on a dip of 14° to 28°. Five breasts are working in its west outlet gangway. A new slant gangway is being driven up 125 yards, with 12 breasts working in it. Five breasts are working in the east E gangway, and eighteen breasts working in the west plane gangway—in all, 65 breasts.

A new slope, 300 yards deep, has been sunk 100 yards east of the shaft, and opened 3 gangways in it, one of which will be used for a counter gangway. All this work in its management and condition cannot be surpassed by any others in the district.

Ventilation is effected by a 40-horse power fan. The air currents are practically managed to make ventilation safe and a success in its application throughout the mine.

Ten engines=572 horse power, with 11 good boilers, are in use. Drainage is effected by the use of tank cages in place of pumps, so arranged as to make it quite reliable; 345 men and 75 boys are employed; 25 mules, 100 wagons and 19,000 yards of tracks are in use.

Monthly shipments, 11,500 tons.

No. 58.—Swate's Drift.

This drift is open in 100 yards, with 7 breasts working, and known as a land-sale colliery, operated by horse power, employing ten hands, and using three mules and four drift wagons.

No. 59.—Bear Ridge.—*G. Mumper, Operator.*

This colliery is situated at the foot of Frackville planes, on lands of Philadelphia city. It consists of a slope sunk on the south dip of the E vein, in 45 feet of coal, with east and west panels open, 179 yards of a tunnel opening the E vein, and has east and west gangways open, 13 breasts are working on this level, with 160 yards of a run, 16 breasts, &c., are worked on the west gangway, all of which are in good condition.

Ventilation is effected by a 20-horse power fan. The mine has been disadvantageously laid out, and works 8 engines=575-horse power, with 20 boilers in use; 2 steam pumps, one 8 inch and one 14 inch columns; 100 men, 33 boys, 11 mules, 25 wagons.

No. 60.—Bear Ridge Tunnel.

This colliery is located at foot of Frackville planes. It consists of a tunnel driven 202 yards north to the E vein, with east and west gangways, working 6 breasts, &c., on a run of 120 yards, and 6 breasts are working on the west panel.

Ventilation is good; 4 engines=150 horse power, 5 boilers, all in good condition; 190 men, 20 boys are employed; 7 mules, 29 wagons; 920 yards of tracks are laid. This is quite newly established, and the colliery embraces all the white ash seams; the location is convenient and accessible to railroad accommodation.

No. 61.—Hazle Dell.—*R. Gorrell, Operator.*

This colliery is situated at Centralia, in Columbia county, on lands of Locust Mountain Coal Company. It consists of two slopes sunk in two lift on the E vein, in 24 feet of coal, with east and west gangway; mining in the eastern panel is chiefly confined to robbing out pillars. The west panel gangway flattens to a level, worked by switch back breastings, and ventilated by an air hole driven out to the old level, making a good second outlet for men; the current is effected by the discharge steam into this upcast, which supplies a sufficient quantity of air; 4 engines=300 horse power, with 10 boilers are in use; one steam pump=60 horse power is used for drainage; 100 men and 38 boys are employed; 32 mules, —— wagons, and 3,782 yards of tracks are in use; monthly shipment 7,000 tons.

No. 62.—Buck Mountain Tunnel.—*R. Gorrell & Co., Operators.*

This new colliery is situated in Columbia county, near Centralia, on lands of Locust Mountain Coal Company. It consists of a tunnel driven 340 yards south to the B vein in 12 feet of coal, with east and west panels opened, 8 breasts are working on its west gangway, and ventilated by a furnace located in an upcast, 5 breasts on the east panel; all the work done is considered safe; 2 engines=60-horse power, with 2 boilers are in use; 60 men and 28 boys are employed; 6 mules, 30 wagons and 2,000 yards of tracks are used; monthly shipments, 3,500 tons.

No. 63.—Cambrian.—*Cleaver & Glenwright, Operators.*

This colliery is situated west of Ashland, on lands of the Philadelphia and Reading Coal and Iron Company. At present the works are standing idle, and are removing the machinery.

No. 64.—Beaver Run Colliery.—*D. Bowman, Operator.*

This colliery is situated north of Mahanoy City, on lands of the Lehigh Valley Railroad Company. It consists of a tunnel driven 150 yards south, cutting two veins in its course, opening gangways in east and west, and continued to the B vein, which has seven breasts working in it. This mine has been ventilated by natural currents, and is of a medium character.

One engine=40-horse power, with 2 boilers in use; 23 men and 6 boys are employed; 4 mules, 26 wagons and 1,400 yards of track are is use. Monthly shipments, 1,000 tons.

No. 65.—Cuyler Colliery.—*Huton & Brothers, Operators.*

This colliery is situated at Raven Run, on lands of Cuyler and others. It consists of 2 drifts opened on the B and E viens. The B vein is 16 feet thick with 7 breasts working, and 8 breasts are working on its counter gangway. 15 breasts are working in No. 2 counter, and has 6 more breasts working in its south counter. A steam fan ventilates the west drift workings; 160 men and 25 boys are employed; 26 mules, 60 wagons, 6 engines =160-horse power, with 10 boilers are in use. One 10-horse locomotive has been substituted for mule power. Monthly shipments, 10,500 tons.

No. 66.—Mammoth Drift.

This colliery consists of a drift, opening with 12 breasts working in its west gangway, with runs of 115 yards in 20 feet of coal, and ventilated by a furnace. Annual shipments, 77,000 tons. 35 men are employed; 6 mules, 26 wagons and 1,500 yards of track are used.

No. 67.—North Mahanoy.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated north of Mahanoy City. It consists of a slope operation on the south dip of the 7-foot vein, with pumps and traveling roads. 16 breasts are working in its west gangway with runs of 80 yards each. This panel is ventilated by a 20-horse power fan; an up-cast airway is open in the 15th breast and into the old level. A tunnel driven west of the slope opens the 16 feet or B vein, with east and west gangways open. 4 breasts are working on the east panel, on which a second outlet has been opened. 13 breasts are working in its west gangway. A tunnel south opens the 6-foot vein, but at present no important operation has been carried on. All the colliery is well ventilated, and the character of the work done is considered safe.

Five engines=146-horse power, with 6 boilers, are in use; 1 steam pump =40-horse power, used for drainage; 155 men and 25 boys are employed; 15 mules, 52 wagons and 3,150 yards of track are in use. I find the colliery in excellent condition.

No. 68.—Hillside.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated at Mahanoy City. It consists of a slope sunk in 2 lifts on the south dip of the Black Heath vein, with east and west gangways opened. 4 veins have been opened in this colliery; little or no mining has been done here this season; a tunnel opens the north and south dips of the several veins; 5 breasts are working in its eastern panel. 58 men and 18 boys are employed; 9 mules and 26 wagons, with 3,490 yards of track are used.

Two engines=50-horse power, with 4 boilers, are in use.

Ventilation is but medium, but the colliery is in good order.

No. 69.—Trenton Colliery.—*Esser, Booth & Co., Operators.*

This colliery is situated north of Mahanoy City. It consists of a slope sunk on the north dip of the D vein on a 23° dip, with east and west gangways opened. The breasts are opened as slant gangways; a new up-cast has been opened out to the surface, where a furnace has been erected for ventilating the mines.

Four engines=140-horse power, with 4 boilers are in use. An 8-inch steam pump is used for drainage. 30 hands are employed.

No. 70.—Hartford.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated in Mahanoy City. It consists of a tunnel driven in south 325 yards, and gangways opened east and west. 8 breasts are working in its eastern panels in 7 feet of coal.

One 12-horse power engine with 2 boilers are used; 23 hands are inside and 10 outside; 3 mules, 6 wagons and 400 yards of track are used. The colliery being newly put in repairs, and the mines re-modeled, promises to make it remunerative in a short time.

Thus 70 collieries have been examined in my district, making 210 visits of inspection; 330 miles have been traveled in the mines and 3,746 outside. There are 52 drifts, 75 slope and 7 shaft collieries; 59 fans are in operation, with 18 furnaces, under whose operation the ventilation of those collieries has been effected, equal to 1,500-horse power; 1,411 breasts of coal are working, exclusive of extension of gangways, the opening of additional works and extraction of pillars and loose coal. 37 tunnels are open their aggregate length.

There are 8,695 men and 2,367 boys employed=11,062 hands; 989 mules and 3,614 mine wagons, with 129 miles of track in use. There are 356 steam engines, with 784 steam boilers in use, and 76 pumps of 8,860-horse power in use for drainage. 44 persons lost their lives during the year; of this number, 33 were killed and 11 died of their injuries, leaving 20 widows and 71 orphans; the casualties resulting in injuries were 95. Of 44 inquests making inquiries into the causes of these casualties that resulted in death, the verdicts rendered in 42 cases decided that they were the result of accidents, and in the other two cases, that other parties were blamable to a criminal extent.

Thus it will be seen, that for each 251½ persons employed, one person lost a life this year; and for each 116½ persons employed, one person had been maimed and injured.

MAPS OF ASHLAND DISTRICT, 1874.

1. Keystone	2 slopes.	25. Wm. Penn	1 shaft.
2. Locust Dale	1 slope.	26. Ellengowan	1 shaft, 1 slope, 6 drifts.
3. Cambrian	1 "	27. Girard	1 shaft, 1 slope.
4. Tunnel	2 slopes.	28. Coal Ridge	1 slope.
5. Focht & Co	1 slope.	29. Silver Brook	1 shaft.
6. St. Nicholas	1 "	30. Honey Brook	4 slopes.
7. Suffolk	3 drifts.	31. Reno	1 slope.
8. Tunnel Ridge	1 slope.	32. Hoffman	1 slope, 2 drifts.
9. Glendon	1 "	33. Colorado	1 slope, 2 drifts.
10. Oak Hollow	1 "	34. Preston's, 1, 2, 3, 4	4 slopes, 1 drift.
11. Copley	1 "	35. Lost Creek	1 slope.
12. Bear Run	1 "	36. Knickerbocker	1 "
13. Primrose	1 "	37. Thomas	1 "
14. Silliman	1 "	38. Girard Mammoth	2 drifts.
15. Bear Ridge	1 "	39. Lehigh, No. 3	1 slope.
16. Turkey Run	1 shaft.	40. Big Mine Run	1 slope, 5 drifts.
17. Gilberton	1 slope.	41. Focht & Co	1 slope.
18. Cuyler	1 drift.	42. Girardsville	1 slope, 6 drifts.
19. Shenandoah City	1 slope.	43. Hazle Dell	1 slope, 1 tunnel.
20. Shenandoah, West	1 "	44. Continental	1 slope.
21. Plank Ridge	1 shaft.	45. Centralia	1 "
22. Grant	2 drifts.	46. Big Mine Run, east	1 slope, 2 drifts.
23. M'Neill	2 slopes.	47. Union	1 slope, 1 tunnel.
24. Barry	1 slope.	48. Excelsior	1 slope.

Forty-eight maps of the different coal tracts, embracing the draft of the inside works of each mine, laid down on a scale of 100 feet to an inch.

NAMES OF THE SHAMOKIN DISTRICT COLLIERIES, THEIR NUMBERS AND COUNTY TO WHICH THEY BELONG.

1. Marshall, Northumberland.
2. Trevorton .....do.
3. Luke Fidler.....do.
4. Henry Clay .....do.
5. Buck Ridge .....do.
6. Enterprise.....do.
7. Reliance.....do.
8. Big Mountain ...do.
9. Mariam .....do.
10. Monitor .....do.
11. Lancaster .....do.
12. Locust Gap.....do.
13. Locust Spring ...do.
14. Short Mountain, Dauphin.
15. Cameron, Northumberland county.
16. Summit Branch, Dauphin.
17. Big Lick.....do.
18. Ben Franklin, Northumberland co.
19. Morton .....do.
20. Alaska .....do.
21. George Fales.....do.
22. Brady..... .....do.
23. Excelsior.....do.
24. Coal Ridge .....do.
25. Black Diamond .....do.
26. Burnside.....do.
27. Bear Valley.....do.
28. Hickory Swamp, Northumberland co.
29. Hickory Ridge.....do.
30. Bear Valley Shaft .....do.
31. Franklin.....do.
32. Royal Oak.....do.
33. Brookside.....Schuylkill county.
34. Colket .....do.
35. West End .....do.
36. Eureka .....do.
37. Kalmia .....do.
38. Lower Rauch Creek....do.
39. Helfenstine, Northumberland county.
40. Big Run Gap, Dauphin.
41. Northside.....do.
42. Diamond, No. 2, Schuylkill county.
43. Phœnix, No. 2.....do.
44. Otto's.....do.
45. Pyne .....do.
46. Middle Creek Shaft.....do.
47. East Franklin.....do.
48. Lincoln Tunnel .....do.
49. Rauch Gap.....do.
50. Bear Valley, Northumberland co.
51. Red Mountain, Schuylkill county.
52. Northside, Dauphin county.
53. Red Ash Tunnel, Northumberland co.

SHAMOKIN DISTRICT.

Names of persons who were killed, or who died of injuries in this district in the year ending December 31, A. D. 1874.

DATE.	Names of Persons Killed.	Names of Collieries,	Wife.....	Children....	Remarks.
Feb. 11,	John Ogden	Luke Fidler	1	2	Killed in the shaft by a fall of slate.
Mar. 10,	George Bonick	Enterprise	1	....	Killed in riding out on the wagons.
19,	Michael Cram	Reliance	1	1	Died; injured by a fall of coal.
30,	Dennis Keho	Big Lick	1	....	Killed by a fall of coal.
April 10,	William Brooks	Short Mountain	1	....	Killed at slope bottom; run over by wagons.
May 2,	Opie Goffrey, boy	Williamstown	....	....	Killed; crushed between wagons and schutes.
19,	Peter Carbes	Brooksido	1	4	Killed by a fall of slate.
June 8,	William Resback, boy	Big Lick	....	....	Killed; was crushed in the rollers.
15,	Charles Syngovick	Hickory Swamp	....	....	Killed by a fall of slate and coal.
July 18,	Charles Miller	Short Mountain	1	2	Died; scalded by steam.
Aug. 7,	James Bowden	Luke Fidler	....	....	Killed by falling into the shaft.
12,	Isaac Derker	Short Mountain	1	6	Died; injured by a prop falling on him.
Sept. 17,	Jacob Potosky	Lower Rauch Creek	....	....	Killed by a fall of coal.
17,	Patrick Delaney	Lower Rauch Creek	1	2	Killed by a fall of coal, same time.
18,	Henry Maguire	Mariam	1	1	Died; effect of being burned by fire-damp.
26,	Levi Heim	Trevorton	1	4	Killed by a fall of coal.
28,	Caleb Snyder	Stewartsville	1	5	Killed; being crushed in the gangway.
Oct. 26,	Martin Brannan	Mariam	1	5	Killed by an explosion of powder.
24,	Evan Price	Williamstown	....	....	Died; was mortally crushed by wagons.
24,	James Delaptane	Big Mountain	....	....	Died; being mortally burned by powder.
Nov. 3,	Samuel Umberger	Burnside	1	3	Died; being mortally burned by powder, October 2.
23,	James Mangan	Locust Gap	1	3	Killed by a fall of gangway slate.
Dec. 3,	John Smith	Monitor	1	2	Killed by a fall of coal.
5,	Michael Cafferty	Mariam	1	2	Killed by a fall of coal.
11,	John Borendy	Mariam	1	3	Killed by a fall of coal, unrecognizably so.
19,	Samuel T. Bateman	Short Mountain	1	4	Died; he was mortally injured by a fall of coal on the 11th inst.

Making 26 deaths in the district during the year, of which number
10 persons lost their lives by falls of coal.
3 persons lost their lives by falls of rocks and slate.
3 persons lost their lives by being crushed by mine wagons.
1 person lost his life by being crushed in the rollers.
1 person lost his life by falling down a shaft.
1 person lost his life by props falling on him by a crush of coal.
3 persons lost their lives by explosions of powder.
1 person lost his life by an explosion of fire-damp.
2 persons lost their lives by being crushed in gangways.
1 person lost his life by being scalded by steam.

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26 deaths, leaving 19 widows and 49 orphans to contend against the miseries entailed upon this class of persons in consequence of such casualties; while in 1873, there were 44 deaths, leaving 28 widows and 98 orphans, being less by 18 deaths, 10 widows and 49 orphans this year. This statement is certainly gratifying to all, particularly to the inspector of mines for the good management of the collieries in his district.

The number of coal producing collieries in the district has not materially decreased, but the shipments have increased somewhat; many of which are engaged in making extensive improvements in sinking new slopes and shafts, and sinking new lifts in old works. The market advantages of Northumberland, cannot be excelled by any other region in the State, and only awaits early and proper developments. Those owned by the Philadelphia and Reading Coal and Iron Company, are making marked progress, while other operators appear to take new vigor from such encouraging examples.

SHAMOKIN DISTRICT.

Casualties which resulted in the maiming and injury to the following persons named herein.

DATE.	Names of the Injured Persons.	Names of Collieries.	Remarks.
Jan. 8,	John Holmes	Buck Ridge	Head crushed by a fall of rocks.
21,	Richard Fotheringill	East Franklin	Eyes, ribs and fingers injured by a blast.
21,	John Donahoe	....do	Severely injured by the same blast.
Mar. 6,	Edward Horn	Bear Valley	Severely injured by an explosion of powder.
10,	Elijah Morton	....do	Severely injured by the explosion of a cartridge.
20,	Wm. Ware	Cameron	Head fractured by a fall of timbers.
21,	Reed Davis	Phœnix, No. 3	Severely injured by the slipping of a rope, which precipitated four men down the slope; cause, the rope being frozen to the slope track.
21,	John King	....do	
21,	Michael Purcell	....do	
21,	Edward Morgan	....do	
21,	Peter Brosert	E. Franklin	Hips crushed; he fell off the breaker.
25,	Edward Williams	Lower Rauch Creek	Severely crushed by a fall of coal.
31,	James Eddie	Short Mountain	Severely burned by an explosion of fire-damp, in which three others were severely injured, some of which were not expected to recover.
31,	Wm. Wesner	....do	
31,	Samuel Wesner	....do	
31,	Jacob Wingert, boy	....do	
April 6,	Nathaniel Morgan	West End	Legs broken by a fall of slate.
14,	Thomas Rowland	Locust Gap	Severely crushed by a fall of slate.
23,	John Nowlan	Luke Fidler	Severely crushed; he fell 50 feet down the shaft.
25,	Irvin Noon	Pyne Shaft	Severely injured by a blast
27,	Jacob Lauer	Bear Valley	Leg broken by a fall of coal.
May 3,	Wm. Keating	Colket	Leg broken; run over by wagons on the bank.
5,	Daniel Wiest	Mariam	Foot crushed; run over by wagons on the bank.
6,	Wm. H. Moyer	Lower Rauch Creek	Leg broken; run over by wagons on the bank.
6,	Wm. Barr	Cameron	Hips dislocated by a fall of coal.
6,	Julius Weimer	....do	Leg broken by the dumper.
11,	Robert Parker	Mariam	Severely crushed; run over by wagons.
11,	John Coyle	Lower Rauch Creek	Ribs crushed by a fall of coal.
13,	George Evans	....do	Leg broken, starting coal.
13,	M. Brannan	Coal Ridge	Arm broken; he fell into the sump.
13,	Enoch Rotscoff	Stewartsville	Severely burned by fire-damp.
13,	Zebulon Shepple	....do	Severely burned by fire-damp.
13,	W. W. Kemp	George Fales	Severely injured; he fell into a cross-cut.
14,	A Polander	Cameron	Hips dislocated by a fall of rocks.
14,	Fred. Gesner	Ben Franklin	Injured by a fall of slate.

	15,	John Ellard	Burnside	Severely injured by a fall of rocks.
	15,	Joseph Troutman	Cameron	Head crushed while coupling wagons.
	15,	Cornelius Sheffler	Lincoln	Leg broken by a fall of slate.
	16,	Edward Moor	Lower Rauch Creek	Hand crushed in getting up the slope.
	16,	John Moyer	....do	Severely crushed by a dumper.
	16,	A miner	Bear Valley	Nearly suffocated by noxious gas.
	27,	Wm. Keil	Lower Rauch Creek	Shoulder dislocated; he fell into the slope.
	27,	Lewis Harris	....do	Leg broken by a fall of coal.
June	1	Charles Dougherty	Locust Gap	Hand crushed by a wagon.
	4,	Thomas Gibbons	Reliance	Arm dislocated by a fall of coal.
	10,	Alfred Wallace	Short Mountain	Severely injured by a fall of coal.
	12,	John Griffith	Shamokin	Severely burned by a blast.
	15,	Frank Delbow	Luke Fidler	Severely injured by a fall of coal.
	15,	James Eatton	....do	.....do.....do.
	15,	John M'Donnell	Burnside	Hand crushed by wagons.
	20,	James Beach	Locust Gap	Severely burned by fire-damp.
	20,	John Stulfox	....do	.....do.....do.
	20,	Thomas Churchill	....do	.....do.....do.
	22,	Samuel Roden	Buck Ridge	Severely injured by a blast.
	22,	Patrick M'Intire	Brady	.....do.....do.
	25,	Wm. Sheehan	Lincoln	Leg broken by a fall of slate.
	25,	J. Reinohl	Williamstown	Arm crushed by wagons.
	29,	John M'Hugh	Greenback	Leg broken in getting on a wagon.
	29,	Jacob Daubbert	Lower Rauch Creek	Slightly injured by a fall of coal.
	30,	Jacob Wagner	Monitor	Leg broken by a fall of coal.
July	2,	Dennis Connor	Williamstown	Head crushed while coupling cars.
	18,	Lewis Schmeltzer	Short Mountain	Scalded by the breaking of a steam pipe.
	18,	John Klinger	....do	.....do.....do.
	20,	John Zerby, boy	....do	Foot crushed by a wagon.
	21,	Lewis Kneily	....do	Arm broken by a fall of coal.
	21,	George Powell	Enterprise	Severely burned by fire-damp.
	24,	Frank Heton	Williamstown	Arm broken by a blast.
	27,	Cyrus Straus	Lower Rauch Creek	Slightly burned by fire-damp.
	27,	Casper Buflop	....do	.....do.....do.
Aug.	8,	Daniel Andrews	Brookside	Foot severely cut by a fall of coal.
	8,	Samuel Bateman	Short Mountain	Slightly injured; kicked by a mule.
	13,	John Key	Middle Creek Shaft	Slightly injured; was struck by a cage.
	14,	John Carr	Monitor	Leg broken by the chain hook.
	21,	Patrick Conway	Lower Rauch Creek	Hips broken by a fall of slate.
	23,	Patrick Falley	Stewartsville	Severely burned by fire-damp.
	23,	Thomas Dalton	....do	.....do.....do.
	25,	A miner	Locust Gap	Leg broken by a fall of coal.
	25,	Thomas Platt	....do	Slightly injured by a fall of coal.

NAMES OF PERSONS INJURED IN THE MINES AT SHAMOKIN DISTRICT—*Continued.*

DATE.	Names of the Injured Persons.	Names of Collieries.	Remarks.
Aug. 25,	Michael Miller, boy	Locust Gap	Severely injured; run over by wagons.
28,	John Suberline	Alaska Shaft	Leg severely injured; cut with an axe.
28,	J. Dunmoyer	Lower Rauch Creek	Fingers cut off by the dumper.
Sept. 2,	C. Hentzinger, boy	Middle Creek	Fingers cut off by the wheels of a fan.
3,	Richard Brace	Trevorton	Severely injured by a fall of coal.
3,	Peter Weiss	Henry Clay	....do.... ....do.
3,	William Brannan	Colket	Fingers broken by a fall of coal.
5,	Evan Price, boy	Williamstown	Leg broken; a log rolled over it.
8,	Sam Schutt	....do....	Severely injured; run over by wagons.
8,	John Williams	Cameron	Leg horribly cut with an axe.
8,	A miner, Swede	Burnside	Dangerously injured by a fall of coal.
10,	Thomas Robertson	Bear Valley	Slightly injured by a fall of rock.
11,	Henry Filer	Enterprise	....do.... ....do.
12,	John Arnford	Burnside	Back dislocated by a fall of coal.
14,	Yarnel Long	Bear Valley	Foot crushed by a fall of coal.
18,	Joseph Evans	Colket	Back crushed by a fall of coal.
18,	John Humphries	....do....	Severely injured by a fall in the mine.
28,	Christ. Kreiss	....do....	Arm crushed; run over by a dumper.
30,	Patrick Delaney	Lower Rauch Creek	Mortally injured by a fall of coal; died.
30,	Nathan Denger	Colket	Severely injured by an explosion of a premature blast, nearly killing these three persons.
30,	William Miller	....do....	
30,	Frank Bressler	....do....	
30,	William Brannan	....do....	Ankle dislocated by a fall of coal.
30,	John Long	Hickory Swamp	Slightly injured by a fall of coal.
30,	William Gross	Morton	Leg broken by a fall of coal.
30,	Wm. Sintkirk	....do....	Slightly injured by a fall of coal.
7,	Caleb Snyder	Stewartsville	Mortally injured by fall of coal, and subsequently died.
10,	Bernard Smith	Colket	Injured by an explosion of fire-damp.
11,	Wm. Shoffstall	....do....	Arm broken uncoupling wagons.
13,	Frank Becker	Cameron	Knee crushed by a fall of coal.
14,	James Brannan	Big Mountain	Severely burned by a keg of powder.
14,	John Brodurek	....do....	Slightly burned by a keg of powder.
21,	Martin Brannan	Marion	Leg broken; mortally injured by fall of coal; died.
21,	Thomas Hillings	Big Mountain	Leg broken by a fall of coal.
21,	Thomas John	Hickory Ridge	Run over by a slope wagon.
22,	J. Delaplane	Big Mountain	Severely burned by an explosion of powder.
22,	John, a Polander	....do....	....do.... ....do. ....do.

	28,	M. Hanaffie	Enterprise	Knee crushed by falling down the slope.
	28,	George Ebby	Bear Valley	Body slightly crushed by fall of coal.
	28,	Henry Fry	....do	Head slightly crushed by fall of coal.
	28,	William Fry, boy	....do	Legs slightly crushed by fall of coal.
	29,	John Shultz	Cameron	Body slightly crushed by fall of rocks.
	31,	Isaac Buckle	Big Mountain	Foot crushed; run over by wagons on the plane.
	31,	William Clayberger	Buck Ridge	Head crushed in riding out of the mine on loaded cars.
	31,	Isaac Strauser	Greenback	Knee crushed by wagons.
Nov.	1,	Frank Horn	Ben Franklin	Severely burned by an explosion of powder.
	3,	Samuel Umberger	Burnside	Mortally crushed by wagons; died.
	5,	Charles Winlack	Short Mountain	Head severely crushed by contact with top rock.
	8,	Thomas Kelly	Luke Fidler	Shoulder broken; crushed by wagons.
	8,	Henry Derrick	Excelsior	Leg broken by a fall of coal.
	9,	Joseph Evans	Colket	Foot broken by a fall of coal.
	9,	Walter Hass	....do	Head injured; being kicked by a mule.
	9,	A miner	....do	Severely burned by fire-damp.
	9,	Washington Dull	....do	.....do.....do.
	9,	Frank Bresley	....do	.....do.....do.
	9,	Emanuel Erdman	....do	.....do.....do.
	16,	Dan Zeigler	Colket	Slightly injured by a fall of coal.
	16,	Amos Weikel	Ben Franklin	Severely kicked by a mule.
	19,	James Campbell	Excelsior	.....do.....do.
	20,	Frank Hauk	Short Mountain	Slightly injured by a fall of coal.
	20,	Patrick Gannon	Mariam	Legs broken by a fall of coal.
	20,	William Coyle, boy	Lower Rauch Creek	Arm broken; run over by a wagon.
	20,	Dan Seger	Colket	Leg broken by a fall of coal.
	20,	Morris Whalen	George Fales	Thumb cut while coupling wagons,
	23,	John Maurer	Lower Rauch Creek	Arms lacerated while oiling engine.
	25,	J. C. Zimmerman	....do	Back and body crushed by a fall of coal.
	28,	Thomas Irvin	Excelsior	Severely injured by a fall of coal.
	28,	Joseph Fothergill	Colket	Head slightly injured by a fall of coal.
Dec.	2,	Peter Miller	Middle Creek Shaft	Thigh broken by a fall of slate.
	2,	Ralph E. Stewart	Kalmia	Leg amputated; crushed by cars.
	12,	Samuel Bateman	Short Mountain	Mortally injured by giving way of a battery.
	12,	Walter Pope	....do	Severely injured by giving way of a battery.

One hundred and fifty persons were maimed and injured in and about the collieries of this district during the year, against 101 casualties in the year 1873. Of this number,

4 died of the mortal injuries they received.
26 were injured by wagons crushing them.
20 were injured by fire-damp explosions.
44 were injured by falls of coal.
15 were injured by falls of rock and slate.
6 were injured by explosions of powder.
11 were injured by explosions of blasts.
5 were injured by the breaking of slope ropes.
1 was injured by machinery while oiling and in motion.
3 were injured by being kicked by vicious mules.
4 were injured by falling down slopes, &c.
15 were injured by sundry accidents.

Character of the injuries sustained—

32 persons whose bodies were severely crushed by sundry accidents.
9 persons had received fractures of the head.
9 persons had their arms broken, and 5 of which were amputated.
4 persons had their fingers cut off.
25 persons had their legs broken, 5 of which had been amputated.
6 persons had their feet cut and crushed, 2 of which had been amputated.
1 person had his eyes destroyed.
2 persons had their shoulders hopelessly dislocated.
4 persons had their hips hopelessly dislocated.
3 persons had their hands hopelessly crushed and disfigured.
3 persons had their backs broken and crippled for life.
52 others were severely injured by sundry accidents.

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150 casualties occurred which resulted in maiming these persons, against 101 casualties of a like character in the year 1873.

Yet although the number of injuries is larger by 49 this year than that of 1873, it is gratifying to know the number of deaths are 18 less this year than was the case in 1873, and still we have good reason to hope a still greater reduction of deaths will result from the good and efficient services rendered by the inspector of the district, Mr. Hemingray, and the good regulations established by a large number of the operators, but particularly in all the collieries operated by the Philadelphia and Reading Coal and Iron Company in this district, and also the increased industry and improvement in the mining bosses and superintendents throughout the collieries generally, who are prudently increasing their knowledge of mining, managing and ventilating mines, who in a few years many of which will be fully competent to manage collieries of any magnitude.

No. 1.—Marshall Colliery.—*Reese & Brothers, Operators.*

This colliery is situated on the southern boundary of Shamokin borough, on lands of William H. Marshall. It consists of a single track slope sunk westward 66 yards to a basin. It is sunk on the No. 13 Red Ash seam, two gangways are open in westward upon the north and south dip. The north dip gangway is open 250 yards, with 150 yards more to open it to the boundary line. This seam is 5½ feet thick on its north dip, on an angle of 68°, with only one breast working.

The south gangway is working with 250 yards open, the seam is 6 feet thick, on an angle of 20°, with one breast working.

Ventilation is obtained by natural means, all the breasts are worked out to the water level gangway, which serves as an outlet air course, and answers the requirements of this colliery, the general character of the work I consider safe.

Drainage is produced by a steam pump; engine in use is an 8-horse power, which serves for hoisting and preparing coal; boilers, two in number, which supplies the steam pump and engine are reported to me in good condition; 13 men, 2 boys are employed, with 2 mules, 5 wagons and 700 yards of tracks are used.

No. 2.—Trevorton Colliery.

This colliery is situated at Trevorton, Northumberland county. It consists of two double track slopes, and has been sunk on the Lykens Valley Red Ash seam, and three water level drifts are open on the turn seams of the White Ash.

No. 1 slope is sunk 90 yards deep on the south dip of Lykens Valley seam, which is here 10 feet thick, the coal of which is nearly mined out, and mining chiefly confined to robbing out pillars.

No. 3 slope is sunk 83 yards deep on the south dip of the Lykens Valley seam, and is here 10 feet thick; 700 yards of gangways are open and are continued; 10 breasts are working on the west gangway, and 15 breasts on the east, and mining actively carried on.

Ventilation is produced by a 12-horse power steam fan, which I find to be amply sufficient for its purpose.

Drift (Renny) on the White Ash seam is opened 150 yards on its south dip in its first basin. Its east gangway has been open 300 yards, cutting into the Renny works, which is partially worked out. A tunnel has been driven 80 yards south, again cutting the No. 9 seam on its south dip in a second basin, 8 breasts are open on the second basin, and all in 14 feet of coal, the seam dip south 55°.

Drift No. 8 on flat, south dip. Its main west gangway is 900 yards long, in 12 feet of coal, dipping 18°. Three plane gangways are open, their aggregate length is 700 yards, with 7 breasts working.

A north dip counter drift gangway 500 yards long is also open with 11 breasts working, 40 feet above another counter gangway is open for the purpose of reaching the upper coal on the saddle or synclinal dips.

Ventilation.—No. 3 slope is ventilated by a 20-horse power fan, located 30 yards west of slope, and operates on the Renny drift workings also, which supplies sufficient ventilation for all.

The north and south dip drifts are ventilated by natural currents at present, but this system will soon be superseded by a steam fan, which will control ventilation to perfection. I find a disposition evinced on the part of the owners to have the law fully complied with.

Machinery.—This consists of ten engines, viz: One 60-horse engine employed at No. 1 slope; one 30-horse engine employed at No. 1 breaker; two 100-horse engines employed at No. 3 slope; one 30-horse engine employed at No. 2 breaker; two 55-horse engines employed at steam fan; two 60-horse engines employed at Renney and Drift Planes; one 30-horse engine employed at saw-mill. With power equivalent to 365 horses.

Drainage is effected by a sixteen inch pole pump at No. 1 slope and a six inch steam pump at No. 3 slope.

There are 25 boilers in use for supplying steam, all of which are reported in good condition.

Remarks.—All the machinery in use is securely fenced off to avoid accidents, and all under the care of efficient bosses and superintended by John Veitch. 192 men and 13 boys are employed inside, and 73 men and 98 boys outside=376 hands. With 45 mules and 156 mine wagons in use, and 6,784 yards of track laid in the works.

Monthly shipments of coal will average 10,000 tons. I am pleased to state, I find the inside and outside works properly managed, and disposition evinced to comply with the requirements of the law.

No. 3.—Luke Fidler Colliery.

Its location is in the east of Shamokin borough, on lands of M. Rand, M. C. It consists of a double track slope, sunk through rock measures, 20 yards deep in a 35° angle, at which point a tunnel 750 yards long is driven, cutting both the red and white ash veins, viz: Nos. 11, 10, 9 and 8; the latter two being the twin seams of the E vein. The tunnel level is used for water drainage and through No. 12 vein to the surface. No. 10 vein coal is well worked out, but a shaft was sunk 71 yards deep, which cut the twin seams 9 and 8 of the E. The western works of the Nos. 9 and 8 are finished on the water line. No. 8 east gangway is worked in 1,000 yards; No. 9 east gangway is now idle; there are 14 breasts working in the eastern district in 7½ feet thick of coal, on a 20° angle.

There are counter gangways open on No. 8, the coal of which is carried by a self-acting plane of 85 yards in length; 14 breasts are working on these counters. 38 yards still above this, a second counter of works are open, with 13 breasts working; the coal of which is dumped into one of the lower breasts, which answers as an inclined plane.

A shaft 70 yards deep is now sunk on No. 10, which cuts the twin veins 8 and 9, in 8 feet of coal on a 20° angle; new gangways are being turned off; the shaft has two ways in it, with a pump and an up-cast air chamber in the same opening, consisting of an area of 252 square feet section. Two 40-horse engines are used for hoisting and pumping, with steam received from the breaker boilers.

Ventilation is effected by means of a 20-horse power fan, located two miles eastward, on the Hickory Swamp works, in the western part of that colliery, while the counters are ventilated by means of an air-shaft open out to the surface, all of which has given general satisfaction.

Machinery consists of—

2 forty-horse power engines, used at the slope.
1 thirty.....do.....do.....breaker.
1 forty.....do.....do.....plane engine.
1 twenty-five do.....do.....steam fan.

Equals 175-horse power, with 8 good boilers in use.

The force employed consists of 240 men and 68 boys, 38 mules and 112 wagons

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No. 4.—Henry Clay.

This colliery is situated near Shamokin, on the estate of the Philadelphia and Reading Coal and Iron Company, and operated by R. Langdon & Co. It consists of a single track slope sunk 106 yards on the north dip of

the No. 8 vein, on an 18° dip. Its main west gangway is open 633 yards, and connects No. 9 gangway by a cross-cut, (tunnel,) and continued 1,410 yards further to the boundary limit. Two slant planes are opened off from this mainway, 633 yards long; 12 breasts are working in 7 feet of coal on a 20° dip.

No. 8 works are nearly exhausted; a counter level drift is open in No. 9, 717 yards long, and nearly exhausted. One slant plane 300 yards long opens off main gangway, having 5 breasts working. No. 8 vein is open by a 46 yard tunnel, having 3 gangways and 6 breasts working in it in 7 feet of good coal and nearly flat.

Ventilation.—This is effected by a 20-horse fan, used for the slope and counter workings, and serves to ventilate both works well. Since the disaster in 1873, when ten persons were suffocated, the works are kept nearly free of fire-damp, and now may be kept quite safe for working.

Machinery consists of one hoisting engine, 40-horse power, which is used for hoisting and drainage; one 30-horse breaker engine=70-horse power, with 6 good steam boilers; one 14 inch pole pump; 140 men and 45 boys are employed in the works, with 108 wagons and 29 mules in use. The monthly shipments will average 7,000 tons. Andrew Fulton, superintendent.

No. 5.—Buck Ridge.

This colliery is situated near Shamokin, on the estate of Renshaw & Johnson. It has been ten years in operation. The operation consists of nine water level drifts open in the twin veins, Nos. 8 and 9, and a double track slope sunk 287 yards deep on the No. 8 seam in 7½ feet of coal, on an angle of 33°. Drifts 5, 8 and 9, are open on No. 9, each gangway is open in 600 yards each; mining is principally confined to robbing out pillars, employing 20 men. Drifts 1 and 2, also open on No. 9, and are confined to robbing pillars. Drifts 7 and 8, are open on No. 8 vein, but No. 7 drift is nearly exhausted of coal; No. 8 drift is 250 yards in 8 feet of good coal, on a 15° dip.

A new double track slope is sunk 287 yards deep on the north dip of No. 8 vein, and 100 yards below the water level workings. Its east gangway is 250 yards long, with 10 breasts working. Its west gangway is 250 yards long, with 10 breasts working and in 9 feet of fine coal, dipping on an angle of 35°. A cross-cut 43 feet long at foot of slope, opens the No. 9 vein in 6 feet of good coal, with two gangways working 5 breasts, from which place an air-hole is excavated to the surface, and also a very substantial traveling road or the second outlet. These gangways are open east and west, extending into the Henry Clay and Greenback collieries

Ventilation.—In the water level workings it is effected by natural currents; all these drifts are connected by cross-cut air courses for this purpose. The slope at present is also ventilated by the same means, but a fan will soon be substituted for this purpose. Drainage is effected by a 14 inch pole pump, discharging into the level gangway.

Machinery.—This consists of 1 hoisting engine, 50-horse power, at slope; 1 pumping engine, 50-horse power, at slope; 1 breaker engine, 40-horse power, preparing coal, equals 140-horse power, with 14 good boilers.

The force employed consists of 109 men and 30 boys, with 33 mules and 150 wagons in use, and some 6 miles of track laid.

No. 6.—Enterprise.—*Thomas Baumgarden, Operator.*

This colliery is situated two miles east of Shamokin, on the lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double track slope sunk 210 yards to the basin on the twin veins on No. 8, it being the underlying vein in a dip of 40°. Its western gangway is open 380 yards in 7 feet of superior coal. Its west gangway on the south dip is open 475 yards through the basin, with breast runs of 40 yards to the flat; here the coal is conveyed to a counter chute from these flat workings to the main gangway, thence out; east and west gangways are open in this flat, which promises to produce a large yield of excellent coal. The north dip is similarly worked, but the coal is only 4 feet thick. Both coals of the slope gangways are taken out of No. 8 gangway; 20 breasts are working and 6 gangways, besides chutes, headings, &c., and promises to become one of the most remunerative mines in Northumberland county.

Ventilation is effected by a steam fan, that has been put in operation lately, and renders ventilation a success which was not the case previously.

Remarks.—The general condition of the mines is good. The roof of the mines is excellent, requiring but little timbering.

Machinery consists of one hoisting engine of 150-horse power for the slope, one pumping engine of 40-horse power at the old slope, one breaker engine of 30-horse power for preparing coal, one locomotive engine of 10-horse power used for haulage. Total—Four engines equal to 230-horse power, with thirteen boilers, which are represented to be in good condition; 150 men and 32 boys are employed; 15 mules and 60 wagons are in use; monthly shipments will average 8,000 tons.

No. 7.—Reliance.

This colliery is situated half mile south of Mount Carmel, on the lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double track slope, sunk 370 yards deep on a north dip of the E seam, on an angle of 17°, and two lifts below water level. Here east and west gangways are open, with chutes and air-course newly opened, in 17 feet of splendid coal. Gangways are being driven on the old slope level 1,450 yards west with 250 yards to run; 6 breasts are working with gangways and air-courses upon this level.

Ventilation is produced by a 20-horse power fan, which produces very good ventilation all through the three levels. I found 14,756 cubic feet of air in circulation, and the general condition of the colliery is good.

Machinery.—245-horse power is used at the colliery, supplied with steam from 11 boilers; a 14 inch pole pump is used for drainage; 166 men and 84 boys=250 hands, 23 mules, 84 wagons and 18,654 yards of track are used on the colliery; monthly shipments are equal to 7,500 tons. A. B. Day, superintendent.

No. 8.—Big Mountain.

This colliery is situated one mile south of Shamokin, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of one drift and 5 counter levels on the north and south dip of the twin seam or E.

Mahanoy drift, on No. 8, is 1,200 yards long westward. At a point 700 yards from drift opening a cross-cut opens No. 9 vein; the gangways

are driving; 2 planes of 413 yards long are open in No. 9, with 14 breasts working in 7 feet of coal, with a run of 45 yards each, to an anticlinal, where a counter gangway is open 133 yards and eastward 140 yards, with 6 breasts working.

In No. 8 vein the gangway and 48 breasts are working in 6 feet of coal. The top rock being bad a resort is had to double timbering to make it safe.

East of the gap, No. 8, the gangway, with 15 breasts are working in coal 6½ feet on an angle of 40°

No. 9 drift east is working with 5 breasts in 4 feet of coal, and has an eastern run of 800 yards more to go.

West side of gap counters being re-opened through old workings on the south dip of No. 8 vein, intending to recover a large body of coal lying over the anticlinal westward.

The Kirkham and Harper drifts are finished, and are now only robbing back pillars.

Ventilation is effected by a 20-horse fan, but not quite effective. I have suggested a plan of improvement, which will remedy the deficiency. The other 5 drifts are ventilated by natural currents into surface air-holes.

Machinery consists of one breaker, one plane and one fan engine=70-horse power, with 4 good boilers; all of which are in good condition.

Two hundred and thirty-five men and 77 boys are employed; 43 mules, 140 wagons and 15,272 yards of track are used.

Monthly shipments 12,000 tons.

No. 9.—Mariam.

This colliery is situated west of Locust Dale, in Northumberland county, on the lands of the Philadelphia and Reading Coal and Iron Company, and consists of one double track slope sunk 308 yards on the south dip of the E seam, varying from 85° to 15°, including 140 feet of trestle work to landing, from which the coal is dumped into the breaker. Thirty yards eastward a pump slope is sunk to said level, and this is also used for the double purpose of men and material, while another trial slope is sunk 100 yards deeper to develop the basin.

The main east lower level is open 180 yards and continued; also the west is 200 yards, with 13 breasts working in coal 25 feet thick, of excellent quality. The east and west counter gangways have 14 breasts working, the coal being lowered to the lower lift by an engine at the pump slope. A self-acting plane is now in use in place of the engine; using the pump engine only for use of men and material.

Ventilation is effected by a steam fan, keeping the colliery well supplied with an abundance of air. I found 35,040 cubic feet of air in the supply current alone.

Machinery in use—One pair of engines for hoisting=250-horse power; one 60-horse engine, used in the pump slope; one 40-horse power breaker engine and a 20-horse power fan. Fusee drums are used in the slope for equalizing the load, as a double weight of coal is hoisted out at each draft. The entire improvements are remarkably well managed.

Drainage is effected by 4 steam pumps of the Allison and Bannan pattern. Twenty boilers supply steam for all purposes. Two thousand two hundred yards of track are laid, and 192 men and 45 boys are employed.

Monthly shipments will average 10,000 tons.

No. 10.—Monitor.

This colliery is situated at Locust Summit, Northumberland county, on lands of the Philadelphia and Reading Coal and Iron Company, and consists of one double track slope 110 yards deep, on the south dip of the E vein, in 25 feet of white ash coal, the *incline* varying from 60° at top, to 20° at bottom, of the first lift where a flat of 40 yards occur. Another lift of 70 yards has been sunk, forming a third lift and a second outlet. Another lift of 110 yards is now down, and is forming new gangways.

An engine of 90-horse power, is located in this flat, for hoisting coal from these lower levels, and delivers it at the first lifts to be raised to the surface. Two anticlinals have been cut in the east gangway, which are 1,750 yards long. Eighty-four breasts are worked, and four new ones opened, on an angle of 60° south. The western panel of this level is now idle. The western gangways are worked into the workings of the A. S. Wolf colliery, with 30 men in it robbing back pillars. The eastern panel of the second lift stands idle. The gangways on the third lift slope. The tunnels and air-courses are newly forming, in 25 feet of coal.

Ventilation is produced by a fan on the east side, and opening from the Wolf colliery on the west, which supplies sufficient air for all purposes.

Drainage is effected by one of Blake's steam pumps from the lower lifts, discharging the water into the Wolf level, to where a 14-inch pole pump lifts it to the surface

The machinery in use consists of two 90-horse power slope engines=180 horse power; two engines at breaker, 20 and 25-horse power=45 horse power; one fan and one saw mill engine, each 20-horse power=40-horse power=265-horse power, and a 60-horse power engine used at the Wolf colliery for pumping water, using 18 boilers for steam, all of which I find are in excellent condition; 150 men and 45 boys are employed at the colliery, with 17 mules and 60 mine wagons, having 2½ miles of tracks in use.

Monthly shipments will average 8,000 tons.

No. 11.—Lancaster.

This colliery is operated by Smith & Keeser, and located two miles east of Shamokin, on the lands of the Mineral Railroad and Mining company. It consists of 4 drifts, opening the twin veins. No. 1 drift has 6 feet of coal in it, nearly flat; No. 2. drift has only one breast working in it; No. 3 drift has six slant breasts working in it; at present it stands idle; No. 4 drift on No. 9 vein has only one breast working in it.

Ventilation is produced by action of the atmosphere. These drifts are connected by cross cuts, for the purpose of equalizing the air current as required, which I find to be sufficient for its purpose. One small engine is used at the breakers, of 15-horse power, with a steamboat boiler.

Thirty men and ten boys are employed; 1,400 yards of track are laid.

Monthly shipments will average 1,800 tons.

No. 12.—Locust Gap.—*Kimbel & Graber, Operators.*

This colliery is located at Locust Gap, Northumberland county, on the lands of the Philadelphia and Reading Coal and Iron company. It consists of two slopes, one a double track coal, and a single track pump slope, 148 yards deep on the E seam on a 40° angle. Six breasts are working in the

east gangway, in eight feet of coal. The west gangway is worked in two separate benches, 8 and 9, with 20 breasts working in two feet of coal, on an angle of 40°. The coal in the No. 9 west gangway is 4 feet thick, and with the exception of a small portion, the top rock is very safe.

Ventilation is produced by a 20-horse power Guibal fan, located midway the hoisting and pumping slopes upon the surface. These slopes are used as intakes. The air circulates through all the gangways, thence up the breasts, returning through the pillars to the fan by means of boxes over the slopes, which supply a good ventilation. But the present plan to me is not practical, as large splits of the air is lost in its passage to the working places, and there it is mostly required.

The mine is drained by an 18-inch pole pump. The machinery in use are: 2 60-horse power hoisting engines=120-horse power used at slope and a 90-horse power engine for pumping; a 40-horse power at the breaker, and a 20-horse power fan—thus, 5 engines of 270-horse power, with 12 good boilers in use; 192 men and 45 boys are employed; 11 mules and 35 wagons, with 1,500 yards of tracks are in use.

No. 13.—Locust Spring.—*Philadelphia and Reading Coal and Iron Company, Operators.*

This colliery is situated at Locust Gap, Northumberland county, on this company's lands, and consists of a double track slope sunk 400 yards deep in three lifts; the lower lift is 197 yards in 19 feet of coal; 10 breasts are working in the east gangway; the breasts have a run of 85 yards, leaving a chain pillar of coal 15 yards thick to support a counter level workings overhead; 10 breasts are working in the west gangway in 19 feet of coal, with a strong top rock for safe mining. A second outlet has been completed for miners to travel from the lower level to the surface.

Ventilation is produced by a 20-horse fan, which circulates through the east and west panels in a practical manner; there need be no apprehension from fire-damp under such a plan. The general character of the work is satisfactory.

Machinery consists of 2 60-horse engines used for coal and pumping; a 30-horse breaker engine; a 20-horse fan engine. Four engines of 170-horse power, with 11 good boilers, in use; 85 men and 40 boys are employed; 10 mules, 30 wagons and 1,500 yards of track are in use. John Veight, superintendent.

No. 14.—Short Mountain.—*Lykens Valley Coal Company, Operators.*

This colliery is located at Wiconisco, Dauphin county, on lands of the Summit Branch Railroad Company. It consists of one slope 500 yards deep on the Lykens Valley vein in 10 feet of coal, on a north dip of 70°, but sunk in two lifts. The east and west panels are opened into three lifts each, of 65 yards of breastings in each, with extensive air courses throughout; the upper lifts are always worked forward of the next lower levels, so as to facilitate the free circulation of the air currents. 12 breasts are working upon the upper eastern panel, in coal 9 feet thick; 16 breasts are working on the second east gangway; 6 breasts are working on the lower west gangway; 12 breasts are working on the first counter; 10 breasts are working on the

second counter west gangway. The coal is passed down the chutes and re-loaded on the lower main gangway. A system of self acting planes will soon be put into service, which will do away with much expense and labor. An air-way is formed all along in this chain pillar for the return air, to prevent its contact with the miners.

Ventilation is produced by a 40-horse fan, located in the first 20 feet above its gangway, the slope being used for an inlet; from 20 to 30,000 cubic feet of air had been in circulation in the different panels in accordance with the number of men in each. The circulation is produced in the eastern panel by the action of 6 boiler furnaces that are placed in the old slope level, which boilers supply steam for five steam pumps and the fan, all located inside. These gangways are somewhat troublesome to be kept open in consequence of the upheaving of the bottom; for an outcast flue, a substantial wall of mason work is raised to the surface, which conveys off all noxious air on its return outward.

Drainage of these mines is effected by means of Bull or Cornish pumps, stationed at Wiconisço, draining the mines of the Short Mountain and Big Lick collieries, a distance of nearly seven miles under ground.

Machinery.—It consists of one pair of 300-horse power hoisting engines at Short Mountain colliery.

One 40-horse breaker engine, 1 20-horse fan engine, 1 60-horse hoisting engine, at Lykens Valley slope, 1 375-horse Cornish engine for pumping, 5 800-horse steam pumps, (aggregated power,) 3 25-horse power feed pumps, (aggregated power;) 14 engines of an aggregate of 1,620-horse power, using 43 steam boilers for the same. Besides this force there are two 17 ton locomotives used inside and out hauling and re-hauling coal. A steam break has been attached to the drum for extra security. 310 miners, 140 laborers and 35 boys are employed inside, and 134 men and 81 boys are working outside. Total—700 hands, 87 mules, 181 wagons and 28 horses are in use. E. C. Hanna, district superintendent.

No. 15.—Cameron—*Mineral Railroad and Mining Company, Operators.*

The colliery is situated in the western suburbs of Shamokin borough, and consists of two slopes and four drifts, three of which are open on the west side and one on the east of the gorge, opening both branches of the Mammoth and No. 10 veins. The slope on No. 10 vein is sunk 65 yards to a shallow basin; its western gangway is finished. The eastern gangway is open 75 yards to where the interyening anticlinal wears out, opening them into the main basin, and continued onward in 6 feet of good coal, with an eastern run of 2,200 yards further east, which promises to be a productive colliery for many years to come. 64 hands are employed in this work. A 40-horse steam Niagara pump is used for drainage, and the mine is amply ventilated by a 20-horse fan.

The second slope is sunk on No. 9 vein on its south dip, inclining to 40° in 8 feet of coal. Its east gangway is continued with 10 breast working, with 10 more breasts open on its west gangway. By a cross-cut tunnel the second vein is opened east and west, with 80 hands employed in it.

Ventilation as yet is confined to natural means. A 10-inch steam pump of 60-horse power is used for drainage.

East drift opens the three branches of the Mammoth vein by a cross-cut in 6 feet of coal. 7 breasts are working on its east gangway on No. 8 vein, and 7 breast are working on No. 9 east gangway, employing 47 hands.

Ventilation is produced by the action of the atmosphere as yet. Western drift on No. 10 vein on its counter gangway has 10 breasts working and nearly run to its boundary line, in 7 feet of coal. Its ventilation so far has been effected by natural means. Employment is here given to 37 hands.

Drift on No. 9 vein employs 13 hands robbing out what pillar coal there left.

Drift on No. 8 vein employs 27 hands getting what coal can be extracted it its counter gangway.

Ventilated by air-holes open out to the surface.

With what new improvement and preparations now made it is estimated the shipment this summer can be run up to 24,000 tons monthly, and for the coming year 322 men and 95 boys are employed; 57 mules, 161 wagons and 14,000 yards of tracks are used. Holden Chester, superintendent.

No. 16.—Summit Branch.—*Summit Branch Railroad Company, Operators.*

This colliery is located at Williamstown, in Dauphin county, and consists of a tunnel 1,244 yards long northward into Bear valley, opening the north dip of the Lykens Valley vein, the coal of which has been extracted on its water level. Three slopes are now sunk inside, viz:

No. 1 slope is located 100 yards west, in the tunnel, and is 225 yards in depth in 8 feet of coal. Its west gangway connects with the Big Lick mines, and is nearly exhausted of coal. The counter levels are also nearly exhausted of coal. On its eastern division 8 breasts are working in 8 feet of coal Gangways extended 2,500 yards, near its limits, and there are 10 breasts working on its counters. Coal 8 feet.

No. 2 slope, 100 yards east of tunnel, is 150 yards deep, with 20 breasts working on its east gangway. Two counters are open by a plane 75 yards long; 1,500 yards of gangways are here open, with 24 breasts working on its level. A strong conglomerate rock covers the seam, making mining quite safe.

No. 3 slope is sunk 100 yards below the bottom of No. 1 slope, and 20 yards west of No. 2 slope, and is intended to be sunk 300 yards deeper than No. 1, making it 525 yards under water level. In its descent, it indicates a more rapid dip of 24°, with favorable prospects.

The small L. V. vein is opened by a cross-cut, at water level, 600 yards east of tunnel, in 3½ feet of coal, with an 18° dip. The breasts are generally opened 12 yards wide, with 8 yards in pillars throughout the works.

Ventilation is produced by 2 fans, each 25-horse power. The tunnel forming an inlet air course, and traverses the lower workings, thence passes up into the counter levels, from which it returns to the out-cast to the surface. The whole mine is amply supplied with pure air.

Machinery.—It consists of one pair of hoisting engines at No. 1 slope, 60-horse power each=120; 2 steam fans, one 30-horse and one 25-horse=55; 1 hoisting engine at No. 2 slope, 80-horse power; 2 hoisting engines at No. 3 slope=200-horse power; 1 breaker engine for preparing coal, 60-horse power; 1 supply engine for water, 30-horse power; 1 steam engine with a 10 inch plunger, 80-horse power; 8 steam engines, with a capacity of 625-horse power, and 24 steam boilers. All of which are in good condition.

Remarks.—Northwardly this work connects with the works of Big Lick colliery, thus intending to open the upper veins. Developments show the

E vein is separated by a rock strata of 14 feet of coal each; the separation being 13 feet in thickness. The D seam is shown to be 5 feet thick. In all the anthracite regions, the equal to this colliery, for its large shipments, is not found. Three hundred and fifty men and 115 boys are employed; 125 mules, 220 wagons and 8 miles of tracks are in use, producing a monthly shipment of some 25,000 tons of prepared coal. Major Joseph Anthony, general superintendent, assisted by Colonel E. G. Savage, outside superintendent, and Wm. E. Thomas, inside boss.

No. 17.—Big Lick.—*Lykens Summit Coal Company, Operators.*

This colliery is situated in Dauphin county, two miles east of Wiconisco, on the lands of the Lykens Valley Coal Company. It consists of 2 slopes sunk on the north dip of the vein. No. 1 slope is sunk 230 yards to the water level of the Lykens Valley vein; its eastern works are open as far as the boundary line, and resorts to mining back the pillars, and the counters are also being robbed back. No. 2 slope is 405 yards deep; its eastern gangway is one mile long, and here both gangway and counters are nearly exhausted, except robbing pillars. No. 3 slope is to be sunk 200 yards under the present lower lifts, and the necessary machinery is on hand for this purpose.

Ventilation is produced by a fan, communication being had with Williamstown, Short Mountain and Summit Branch collieries for this purpose. Large excavations are made in the hard conglomerate rock for the reception of machinery in this mine. From this nest of boilers, an air-hole will communicate with the surface some 216 yards through rock and tunnels, to make it effective and permanent.

Machinery in use.—3 hoisting engines=180-horse power; 1 breaker engine, preparing coal=35-horse power; 1 steam fan engine, for ventilation =12-horse power; 2 pump engines, for water supply=20-horse power. 7 engines of a capacity of 247-horse power, with 16 steam boilers in use and good order.

Requirements of the colliery: 177 men and 72 boys are employed; 31 mules, 80 wagons and 4,400 yards of track are used. Monthly shipments average 10,000 tons. Col. E. G. Savage, superintendent.

No. 18.—Ben Franklin —*Douty & Baumgarden, Operators.*

This colliery is situated at Helfenstine, in Northumberland county, six miles to the south of Shamokin, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of two drift openings, and a tunnel opens the Lykens Valley vein in 8 feet of coal, with a counter drift in the same. 7 breasts are working in the west panel with runs of 104 yards up to its counter, where 14 breasts are working, with a run of 140 yards each, all well covered with a strong rock top, and well ventilated by natural currents. Eastward, shows little or no development as yet.

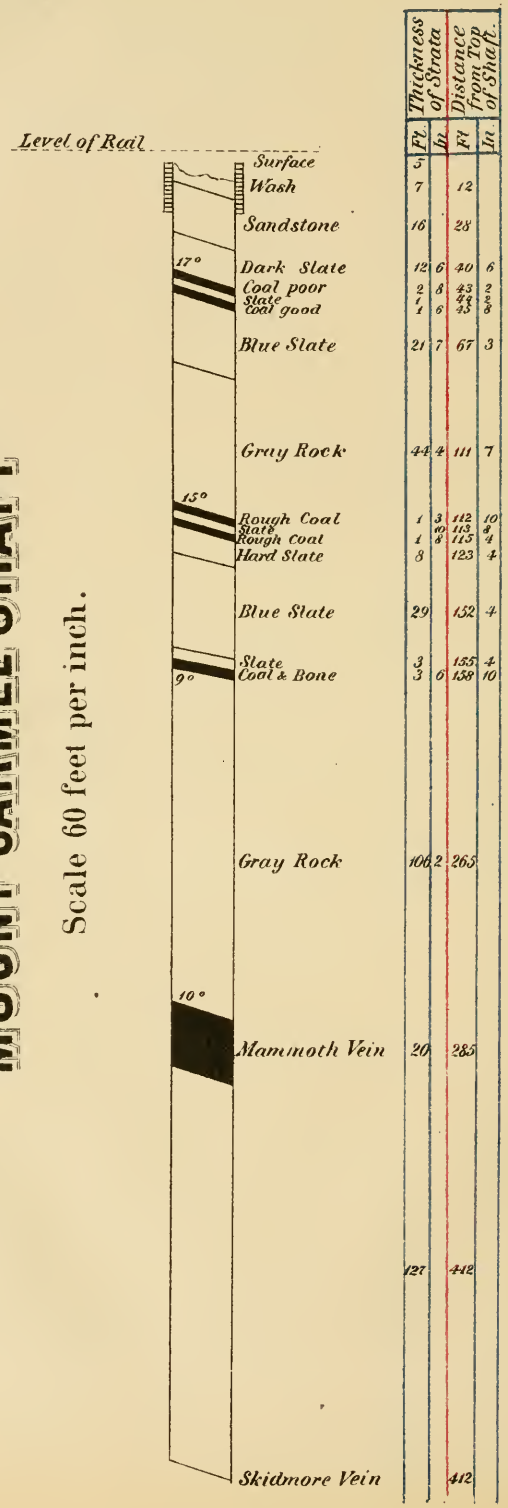
Requirements of the Colliery.—One 25-horse breaker engine in use, with three good steam boilers; 71 men and 47 boys are employed; 21 mules, 45 wagons and 3 miles of track are used. Monthly shipments will average 6,000 tons.

Plate N.º

Showing a profile drawing of the P.R.C & I. Co's Alaska Shaft West of Mount Carmel in North'd County Penna. By Gen.l Henry Pleasants, Chief Engr & Superintendent.

SECTION OF THE PHILADELPHIA & READING COAL & IRON COMPANY'S MOUNT CARMEL SHAFT

Scale 60 feet per inch.



	Thickness of Strata		Distance from Top of Shaft.	
	Ft.	In.	Ft	In.
Surface	5			
Wash	7		12	
Sandstone	16		28	
Dark Slate	12	6	40	6
Coal poor	2	8	43	2
Slate	1		43	3
Coal good	1	6	45	8
Blue Slate	21	7	67	3
Gray Rock	44	4	111	7
Rough Coal	1	3	112	10
Slate		10	113	8
Rough Coal	1	8	115	4
Hard Slate	8		123	4
Blue Slate	29		152	4
Slate	3		155	4
Coal & Bone	3	6	158	10
Gray Rock	106	2	265	
Mammoth Vein	20		285	
	127		442	
Skidmore Vein			442	

No. 19.—Moreton.—*Moreton & Bros., Operators.*

This colliery is situated west of Mt. Carmel borough, on the lands of the North Central Railroad Company, and consists of two drifts on north and south dip of the E vein in 16 feet of coal. Mining in the south drift is confined to robbing back pillars; 9 breasts are working in its small local basin, which basin in its north and south dip has been nearly exhausted of coal. North drift stands idle at present. The whole is ventilated by natural currents. One breaker engine, 15-horse power, and one boiler in use; 31 men and 14 boys are employed; 6 mules and 17 cars in use.

No. 20.—Alaska Shaft.—*Philadelphia and Reading Coal and Iron Company, Operators.*

This establishment is situated west of the junction of Shamokin and Mt. Carmel railroad, at that station The shaft is sunk 100 yards to the E vein, in 20 feet of coal, dipping 10° south, comparted for two hoisting ways, with a pump column and air shaft enclosures. Both gangways are cleverly opened some 130 yards each for effective ventilation. An air shaft will be sunk to the anticlinal on the south to reach an air-course made off from its gangway, upon which opening a fan will be erected.

The use of the diamond drill was brought into requisition in the excavation of the shaft, and by its aid a large amount of money and labor had been saved to the company. Blasting by an electric battery expedited the mining and quarying of the rock, which was directly under the superintendence of General Pleasants, and local assistant, E. Reese. The improvements are all substantial, and evince the good judgment and economy of the persons in charge.

The machinery consists of a pair of hoisting engines=250-horse power, a 60-horse power breaker engine; a 25-horse power fan, and 2 20-horse power engines=40-horse power at the saw mill; 6 engines=375-horse power, with 10 good boilers; 56 men and 21 boys are employed; 10 mules, 30 wagons and 450 yards of tracks are used; 1 No. 6 Cameron pump is being used for drainage.

No. 21 —George Fales.—*Heim and Goodwell, Operators*

This colliery is situated west of Shamokin, in Bear Valley, on lands of the Philadelphia and Reading Coal and Iron company. It consists of a double track slope sunk 220 yards on the north dip of No. 10 vein, its eastern division being idle at present. Five breasts are working in its western division in 6 feet of coal. A tunnel 150 yards north opens the No. 11 vein in 7½ feet of coal, on a 15° dip. Its east gangway touches the anticlinal 20 yards from its face, in coal 12 feet thick on its south dip. Two slant gangways, 50 yards each, are working 6 breasts in 7 feet of coal on a 15° dip.

The counter coal is dumped into the tunnel and reloaded there. Five slants are open and two breasts worked. On the east counter five breasts are working. A strong rock covers the whole vein, making mining comparatively safe.

Ventilation is produced by natural currents, and found adequate for its purpose. Drainage is effected by a 60-horse power steam pump.

Machinery in use.—A 60-horse power hoisting engine; a breaker engine of 35-horse power; 3 engines=155-horse power, with six good boilers; 60 men and 25 boys are employed; 10 mules, 38 wagons and 3,000 yards of tracks are in use.

Monthly shipments will average 4,000 tons.

No. 22.—Brady.—*Guiterman & Gorman, Operators.*

This colliery is situated at Greenback, east of Shamokin, on the lands of the Philadelphia and Reading Coal and Iron company and Lykens Valley railroad company. It consists of two drifts, opening veins No. 8 and 9, and two drifts on the B vein. The coal in the No. 8 vein is 5 feet thick. Its eastern limits are 3,800 yards long, with 10 breasts working. Thirteen yards of a cross-cut open No. 9 vein in 4½ feet of coal and working 9 breasts, with runs of 100 yards each. Three breasts are working on No. 8 counter, and 3 slants on a 6° dip, (flat,) and worked into the works of the Excelsior colliery. The Buck Mountain drifts are idle at present.

Ventilation here is produced by means of furnaces, which are sufficient to supply a proper quantity of air.

Machinery in use.—A 30-horse power breaker engine and a 20-horse power plane engine, with five good boilers in use.

Requirements of Colliery.—Eighty men and 26 boys are employed; 18 mules, 50 wagons and 4 miles of tracks are in use.

Monthly shipments, 5,000 tons.

No. 23.—Excelsior.—*C. W. Kingsberry, Operator.*

This colliery is situated 3½ miles east of Shamokin, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of 6 drifts on veins Nos. 8 and 9.

A drift 850 yards; 12 breasts are working on its counters, veering from east to north on a 10° dip.

B drift on No. 8, is 900 yards; 8 breasts are working on this level in 6 feet of coal.

C drift on No. 9, is 950 yards; 2 breasts are working here; a slant counter gangway is driving and rounding this anticlinal in coal 5½ feet thick.

D drift on No. 8, 1,000 yards, and rounded the anticlinal and coursing westward, working 6 breasts in it. These drifts are connected by cross-cuts and with the works of the Brady colliery.

North drift on No. 8, with 8 breasts working on its north dip in 12 feet of coal, with a strong rock top throughout.

South drift on No. 8, with a run 650 yards into the M'Intyre tract. 2 breasts are working on its slant gangway and 5 breasts on its main gangway in 14 feet of coal, dipping south 30°. Aggregate breastings 43.

Ventilation is effected by natural currents inducted by the drifts, and find it adequate for all purposes. Should a necessity exist mechanical ventilation will be introduced.

Machinery in use.—One hoisting and breaking engine of 65-horse power, with 6 boilers; 132 men and 45 boys are employed; 26 mules, 140 wagons and 6½ miles of track are used. Monthly shipments, 8,000 tons.

No. 24.—Coal Ridge.—*Burton & Brothers, Operators.*

This colliery is situated in Columbia county, at Coal Ridge, on lands of the C. R. Imp. and C. Co. It consists of a double slope on the south dip of the E vein—110 yards under the water level on a 65° dip, requiring the use of cages. Its gangway is idle. 3 breasts are open on its west gangway. 44 yards of a cross-cut opens No. 8 vein. Its east gangway is idle. 3 breasts are open on its west gangway; an air-hole 60 yards long and opens into the drift level, thence to the surface. On the 15th September the works were suspended by reason of a strike until lately, when some temporary work had been begun.

Remarks.—Recently a new vein has been discovered on the south of the present veins, giving rise to speculative opinions, concerning the reality of the different veins, which remains to be demonstrated by actual developments to determine their proper status, and end this controversy. Drainage is effected by a 17-inch Thatcher steam pump at the slope.

Requirement of the colliery: 90-horse hoisting engine; 30-horse breaker engine; 30-horse plane engine, or 3 engines=150-horse power, with 16 boilers; 24 men employed; 12 mules, 26 wagons and 2½ miles of track are in use. J. B. Reed, superintendent.

No. 25.—Black Diamond.—*Wm. Schwank & Co., Operators.*

This colliery is situated at Green Ridge, west of Mt. Carmel, on lands of Henry Saylor. It consists of two drifts open on the twin veins in 6 feet of coal; its north dip 22°, and south dip 50°. 5 breasts are working in the north dip, and 4 breasts working in the south dip.

Ventilation at the time of my visit was found deficient, by reason of small air-courses. I pointed out the course to provide a proper supply of fresh air; my plan has been complied with, by opening from north to south over the anticlinal axis of the vein.

Machinery in use, are a breaker and plane engine of 40-horse power, with 2 boilers; their condition not determined; 34 men and 18 boys are employed; 5 mules, 25 wagons and 1¼ miles of track are in use; the condition and character of the work done is satisfactory.

No. 26.—Burnside Colliery.—*May & Morgan, Operators.*

This colliery is situated at Burnside, Northumberland county, on the lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double track slope on No. 9 vein. Its east gangway struck an anticlinal 445 yards from the slope, veering round to west 1,000 yards in length. 11 flat breasts are working here; the west track of the slope has been sunk 50 yards deeper into the basin, and a slant gangway opened; 5 breasts are working in this panel in 7 feet of coal, and 2 breasts are working in its east gangway. The west gangway in No. 9, is now idle; a cross-cut opens No. 8 vein in its north dip; its western panel is suspended; also its eastern panel is idle. No. 2 slope is sunk on north dip of No. 9 vein in 7 feet of coal, with 2 breasts working in its west gangway. A drift opens No. 8 vein, with three breasts working, with runs of 12 yards to meet the anticlinal. 700 yards of a tunnel have been driven to Big Mountain, at present suspended.

Ventilation is effected by a 20-horse fan, located over the anticlinal; these slopes are used as inlets, traversing the basin and workings out to the fan. The south slope is ventilated by natural currents, and was found quite satisfactory.

Drainage is effected by a 14-inch pole pump, located in the lower lift.

Machinery in use.—50-horse hoisting engine; 90-horse pumping and hoisting engine at south slope; 40-horse breaker engine, and 10-horse power fan=4 steam engines of 190-horse power, with 11 boilers, all of which are in good ordinary condition.

28 mules, 87 wagons and 3,000 yards of track are laid. Monthly shipments, 7,000 tons.

No. 27.—Bear Valley.—*Heim & Goodwell, Operators.*

This colliery is situated three miles south of Shamokin, on the lands of the P. R. C. and I. Co. It consists of a tunnel 325 yards south, opening the Twin veins on their north dip in coal, No. 9 fifteen, and No. 8 in five feet thick. Two breasts are open on No. 9, west gangway, with runs of thirty-seven yards each. A cross-cut opens No. 8, its partition rock being only eight feet thick. Five breasts are open on this panel in fourteen feet of coal. The east panel is open 1,900 yards, with mining confined to robbing back supports. A back switch gangway cuts No. 9 vein in seven and one-half feet of coal on a 12° dip, working five breasts, with its general condition satisfactory.

Ventilation is produced by a furnace in No. 8, west of the tunnel, No. 9 being the inlet, and circulating throughout the mines. I found it sufficient for all practical purposes.

Machinery in Use.—One 30-horse breaker engine, with two boilers, which were represented to be in good order.

No. 28.—Hickory Swamp.—*Mineral Railroad and Mining Co., Operators.*

The colliery is situated two miles east of Shamokin, on lands of said company. It consists of a double slope on No. 8 vein on a 13° dip. Its east gangway is suspended at present, but working six breasts, and five breasts working on its slant gangway. One breast is working in the No. 8 cross-cut. No. 9 west gangway is suspended. Communication from the Luke Fidler works is open into this level. Eight back switch breasts are working on the plane level in six feet of coal, on a 15° south dip. A cross-cut is now under way to develope what is supposed to be a large field of coal.

A drift is opened a mile in length on the straight vein, and resort is had to robbing out supports, etc. Three breasts are working in the west gangway in seven feet of coal on a 70° dip.

No. 5 drift on south side of No. 8 vein, on top of the plane, where four breasts are working in six feet of coal.

Ventilation is effected for the slope by a 20-horse fan, the slope being the inlet, the current traversing the workings in the lower lift and passing up into the counter works to the fan. The Straight Vein drift works has been ventilated by air holes in every fifth breast, and in this manner renders satisfaction.

Drainage is effected by a 12-inch pole pump. One 120-horse engine is used as a hoister and manufacturer of coal, and also supplies the fan, using seven good boilers, all of which are in good condition.

162 men and 4 boys inside, 47 men and 71 boys outside=209 men and 75 boys. 33 mules, 175 wagons and 3,000 yards of track in use.

I consider the character of the work done safe and substantial. Holden Chester, district superintendent.

No. 29.—Hickory Ridge.—*Mineral Railroad and Mining Company, Owners and Operators.*

The colliery is situated two and a half miles east of Shamokin, on lands of said company. It consists of one tunnel south, opening the twin vein now in fault. A double track slope on the south dip on No. 9, in 5½ feet of coal on a 70° dip. No breasts are open at present. A cross-cut is now driven off 7 feet at face of both gangways into No. 8, in 6 feet of coal, and an air-hole now driving up No. 8, and preparing to ship coal in the spring. 68 men and 15 boys are employed; 6 mules, 31 wagons and 1,500 yards of track are in use.

No. 30.—Bear Valley Shaft.—*Philadelphia and Reading Coal and Iron Company, Operators.*

This shaft is located 50 yards north of Bear Valley tunnel colliery; is 110 yards deep; in its sinking the 10, 9 and 8 veins were cut through. East and west gangways are open on No. 8 vein; no breasts were as yet open.

Machinery in use consists of one pair of hoisters=150-horse power, with seperate Fusee drums, each of 12 feet diameter; the hoisting will be with cages, and double hoisting tracks of 7×12 feet each. The shaft or cage guides are in position; the pump and air chambers are completed, and all things nearly ready for shipping coal. The whole reflecting credit on the officers in charge; 16 men employed; 10 boilers in use, reported in good condition.

No. 31.—Franklin.—*Lovell, Booth and Holmes, Operators.*

The colliery is situated on the southern confines of the borough, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of one drift; the east gangway is idle; it passes through an old basin and rises east, forming a north and south dip, rising from 3° to 6° in length, 432 yards; are working 2 breasts on each dip in 5 feet of coal; the north dip is on a 55°, while the south dip is 35°; one 8-horse power at breaker with 1 boiler; 26 men and 15 boys employed; 4 mules and 12 wagons in use; 700 yards of track laid; monthly shipments, 1,100 tons.

No. 32.—Royal Oak.—*Tillet & Son, Operators.*

This colliery is situated in Shamokin, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a drift open on a Red Ash

vein, driven 350 yards eastward, mostly through old works, and now in 5 feet of coal with a 35° dip. It may be classed as a landsale colliery for home consumption. 3 men are employed; 1 mule and 3 wagons are in use.

No. 33.—Brookside.—*Philadelphia and Reading Coal and Iron Company, Operators and Owners.*

This colliery is situated at Tower City, in Schuylkill county. It consists of a double slope 150 yards deep on the north dip of the Lykens Valley vein, on a 32° dip. Its east panel is 1,066 yards long, and is idle. Its west panel is open around the basin, with 8 breasts working in coal 11 feet thick on a 30° dip 7 breasts are working in No. 3 east counter level. No. 4 east counter level is 95 yards above the lower level, and parallel to the main gangway; a self-acting plane, which will be substituted for the present counter chute system in use. 19 breasts are open on this level.

No. 5 slant gangway is open off from No. 4 level. 3 back switches, as breasts, are worked by this plane. No. 6 is also opened off from No. 4, and is idle at present. No 7 is opened as No. 6, with 5 slant breasts working in 9 feet of coal. 400 yards west of the slope a tunnel is open, intending thereby to cut through the upper portion of the slope workings. A short distance west of the tunnel an air-hole is being opened out to the surface. Gangway connections have been made with the tunnel level, which is to be opened around the anticlinal, to effect mining coal in what is known as the Williamstown basin. A new breaker of a daily capacity of 1,000 tons has been nearly completed. The officers of the company have charge of the improvements. The colliery promises full remuneration for any expenditure made.

Ventilation is effected by a fan, which was then only tolerable. These difficulties are to be shortly remedied.

Drainage is effected by 2 20-horse steam pumps=40-horse power. One 100-horse power hoister engine, 1 40-horse power breaker, 1 25-horse power fan and 1 25-horse power sawmill engine are in use=190-horse power, with 18 good boilers. 207 men and 36 boys are employed; 40 mules, 100 wagons and 7,000 yards of tracks are used.

Monthly shipments, 12,000 tons.

No. 34.—Colket.—*Owen, Colket & Co., Operators.*

This colliery is situated at Donaldson, in Schuylkill county, on the lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double slope sunk on the south dip of the Black Heath vein, in 7 feet of coal on a 50° dip. Its west panel is open 950 yards, with 1,400 yards more to its line, working 4 breasts with a run of 45 yards and the counter run of 30 yards. A counter level is open 75 yards above the main level, its coal being hoisted in cages out of the main level, working 6 breasts in it; 65 yards above this counter, a monkey air-course is open for the return air. A tunnel 100 yards north, opens the E vein in 16 feet of coal; mining here is confined to robbing out pillars. Work in the west gangway is continued, but no breast work yet.

Ventilation is effected by a 30-horse fan, and west of the slope a 20-horse fan ventilates that division of the mines. The slope being used for an inlet, the air current traversing the lower works, thence forced into the upper

levels and out at the fans. Four 18-inch pumps are used for drainage; two hoisting engines of 120-horse power are used at the slope; two pumping engines of 240-horse power are used at the slope; two steam fan engines, 50-horse power, east and west of slope; 1 breaker engine, 40-horse=450-horse power, with 21 good boilers. 110 men and 79 boys are employed; 20 mules, 60 wagons and 2½ miles of tracks are used. Monthly shipments will average 7,000 tons.

No. 35.—West End.—*Owen, Colket & Co., Operators.*

This colliery is situated in Schuylkill county, and west of Donaldson, on the lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double slope sunk 140 yards deep on the south dip of the Black Heath vein, on a 70° dip; no breasts are yet open on its east gangway. The principal work doing at present is driving a tunnel south to the Primrose vein; 23 yards of the tunnel are finished, and it is thought eight yards more will reach the vein. An engine of 150-horse power, with 6 good boilers, works the breaker and hoists the coal. 500 yards of track are used, and 25 men are employed. This being quite a new slope colliery, its advantages are such as to promise a full remuneration.

No. 36.—Eureka.—*Owen, Colket & Co., Operators.*

This colliery is situated at Donaldson, on the lands of the Philadelphia and Reading Coal and Iron Company. 104 yards of a north tunnel opens Lehigh Valley vein in in 4 yards of coal; its east gangway is idle. In this gangway another tunnel is open 18 yards, cutting the Lehigh Valley lower vein in 5½ feet of coal; in its eastern run, the seam reduces to 3½ feet thick, on a 34° dip; this has been the only work done at present, giving work to three men.

No. 37.—Kalmia.—*Phillips & Sheaffer, Operators.*

This colliery is situated in Schuylkill county, eight miles west of Tremont, in Williams Valley, on lands of Philadelphia and Reading Coal and Iron Company. It consists of a tunnel driven 175 yards south, and opens the Lykens Valley vein in 9 feet of coal. Its western panel is 2,700 yards long, working seven breasts, and its eastern panel is 2,200 yards long, working four breasts in five feet of coal.

Ventilation is effected by one of Bailey's patent fans, which is a forcing fan, not a suction fan; the operation of which is satisfactory.

Machinery in use.—A 40-horse breaker engine; a 15-horse fan engine, with 4 boilers, 2 of which are not satisfactory. Force employed are 100 men and 50 boys, with 16 mules and 55 wagons, and 5,500 yards of track are used. Monthly shipments average 5,000 tons.

No. 38.—Lower Rauch Creek.—*Miller, Graff & Co., Operators.*

This colliery is situated in Schuylkill county, 2 miles west of Tremont borough, on lands of the Philadelphia and Reading Coal and Iron Company. It consists of a double slope sunk 387 yards in three lifts on the E, or Mam-

moth vein, on a 25° dip. 1,500 yards of an east panel has been opened, coursing around an anticlinal veering to north; 22 breasts are working, on a run of 90 yards; a counter level has been opened, but no breast works at present. Its western panel is 2,400 yards, coursing around the anticlinal to the north, working 13 breasts in 18 feet of coal and a 35° dip.

Ventilation is effected by 2 fans, the slope being the inlet, the air traverses the gangways, thence into the working places, returning to the fan outlets, which system renders ample satisfaction.

Drainage is effected by two 18-inch pole pumps, with a 16-inch steam pump in position in an old slope eastward of the present slope. At the new slope three more pumps are in use—an 18-inch and an 8-inch pole pump, and a 16-inch steam pump. Its machinery consists of a pair of hoisters of 120-horse power; a 60-horse power slope pump; two fan engines of 35-horse power; a 60-horse power steam pump in the east slope; a 30-horse power breaker engine for preparing the coal = 305-horse power, with 30 steam boilers, all in good condition. Its force is: 197 men and 60 boys; 55 mules, 105 wagons, with 8,800 yards of track in use.

Monthly shipments, 1,200 tons. Edward Moore, inside boss.

No. 39.—Helfenstine.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated in Northumberland county, at Helfenstine borough. It consists of a double lift slope and tunnel. Its eastern panel is obstructed 86 yards from its opening by a rock fault. Its western panel on the slope level is in 12 feet of good coal, on a 34° dip. Its machinery consists of a hoisting engine of 45-horse power, a 40-horse power breaker, a 20-horse power fan and two steam pumps of 60-horse power=165-horse power, with 5 steam boilers in use.

Remarks.—Work had been suspended in November. The only work going on is drainage. Extended report is unnecessary.

No. 40.—Big Run Gap.—*James Fennel, Operator.*

This colliery is situated a mile west of Wiconisco, on lands of the Summit Branch coal company. It consists of two drift openings in the Lykens Valley vein, used as a local supply colliery, and employing 14 hands. Nine mules, 8 wagons and 700 yards of track are used.

Monthly shipments average 150 tons.

No. 41.—North Side.—*Edward Miller, Operator.*

This colliery is situated at Gratztown, in Lykens Valley, and consists of a drift, opening the Lykens Valley vein on its north dip, in 9 feet of good coal. This is also a local sale colliery, on lands of Summit Branch coal company, employing 16 hands and a small 20-horse power engine for preparing coal.

No. 42.—Diamond, No. 2, Forestville.—*John Wadlinger, Operator.*

This colliery is situated in Schuylkill county, on lands of the Philadelphia and Reading Coal and Iron Company, at Forestville. It consists of a double slope sunk 230 yards deep on the J vein in 6½ feet of coal, south 50° dip, and into its basin on second lift. Its panel has been finished; mining in its west panel is confined to robbing out pillars; a counter level is open by a self acting plane. 12 breasts are working. A large body of water lies over this gangway in the old Miller workings; by test holes bored ahead of mining, a solid rock partition has been found, suggesting the formation of another basin. Measures have been taken to develop this basin by boring through the strata vertically, and ascertain the true position, both of the water and basin.

Drainage is effected by a 14-inch pole pump, (No. 6, Cameron steamer.)

Ventilation is produced by a 20-horse fan near the slope opening, it being used as an inlet air course. The mine generates fire-damp largely, but ventilation is so well managed that comparatively but little danger need be apprehended of any severe explosion.

Machinery in use: One hoisting engine of 60-horse power; one pumping engine of 50 horse power; one breaker engine of 15-horse power; one fan engine of 20-horse=145-horse power, with 8 good boilers in use. 81 men and 38 boys are employed; 11 mules, 38 wagons and 3,600 yards of track are in use. Monthly shipments, 5,000 tons.

No. 43.—Phœnix, No. 2.—*Philadelphia and Reading Coal and Iron Company, Operators.*

This colliery is situated in Schuylkill county, at Phœnix Park, and consists of a double slope sunk in two lifts of 160 yards each; its upper lift has been mined out, and mining in its lower lift is confined to robbing out pillar coal. The engines used to work the lower lift is located at the bottom of the first lift. 15 breasts are working in its eastern panel, in 13 feet of coal, on a 26° dip, with 60 yards of run. 5 breasts are working in its western panel, in 6 feet of coal, on a 29° dip, with runs of 85 yards each.

Ventilation is effected by a 20-horse fan, the slope being used for an inlet; the air split in east and west to the working places, returning up and out to the fan. I found ample ventilation and the mine well managed.

Drainage is effected by two pole and one steam pump.

Its machinery consists of one hoisting at upper slope of 60-horse power; 20-horse breaker engine, and 20-horse fan; three engines=100-horse power for upper slope, and three engines used for air compressors of 45-horse power, to work the hoister and pumps in the lower slope=45-horse power =145-horse power, with 13 good boilers in active use.

Fire-damp is generated here to a considerable extent; with ordinary care explosions may be easily avoided. The compressed air of the exhaust was found at 9° above zero, which temperature effects a serviceable auxiliary for the downcast air currents. 90 men and 47 boys are employed. Kilgore & Willcox, contractors.

No. 44.—Otto.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

The colliery is situated in Schuylkill county, at Branchdale. It consists of 2 slopes, one on the red ash and one on the white ash veins. The

red ash slope is sunk 332 yards deep on the Primrose or G vein, in 12 feet of coal, in three lifts on a 35° dip; this work is idle at present. The mine being on fire for several months, which fire had to be deluged in order to its extinguishment, which was safely effected, and pumping resumed.

The white ash slope is sunk 70 yards on the Black Heath vein, on a 30° dip. Its east gangway was driven horizontal to the surface to effect drainage. Its west gangways was then idle; a tunnel 300 yards west of the slope in this gangway and run 57 yards north some 43 yards yet to mine, intending to cut the branches of the E vein in its course.

An extended report is not necessary at present. There are 14 engines in use=540-horse power, with 16 boilers; 23 mules and 80 wagons are in use, which when in full operation employs 220 men and 50 boys.

No. 45.—Pyne.—*J. C. White, Operator.*

The colliery is situated in Schuylkill county, on lands of the Philadelphia and Reading Coal and Iron Company, at Swatara Falls. It consists of a double slope sunk 275 yards on the south dip of the G vein, in 10 feet of coal, on a 45° dip, and in three lifts. Its lower eastern panel is working with 7 breasts; 3 breasts are working on its western panel, found the colliery idle at the close of the year.

Ventilation is produced by a 20-horse power fan. The slope is used as an inlet. I find ventilation but imperfectly established. I notified the operator of this matter, who promised to comply, when work would again be resumed Fire-damp is so generally generated as to necessitate the use of safety lamps for the miners. Drainage is effected by 3 pole pumps, a 10, 16 and 18-inch column.

Machinery in use consists of 2 hoisting engines of 40-horse power each =80-horse power; 1 pumping engine of 90-horse power; 1 donkey engine of 10-horse power; 1 fan engine of 20-horse power; 1 breaker engine of 30-horse power; 1 breaker engine in the Fisher basin of 30-horse power; total 260-horse power, with 16 boilers at Pyne, and 4 boilers at Fisher's basin=20. No report had been made to me of their condition. 200 men and 50 boys are employed when in full operation; 16 mules, 40 wagons and 5,000 yards of track is used.

No. 46.—Middle Creek Shaft.—*Philadelphia and Reading Coal and Iron Company, Owners and Operators.*

This colliery is situated in Schuylkill county, at Middle Creek. It consists of a shaft sunk 599 feet to the Primrose vein in eleven feet of coal. 3 breasts are open on the east panel; 100 yards west of the shaft a tunnel is driven north 36 yards, opening the Black Heath vein in 15 feet of coal, on its south dip, of 42°. The tunnel is still continued, intending to open the E vein in a distance of 140 yards from the G vein. An air-hole will be open from the level of the shaft out to the surface.

The colliery is a new operation and bids fair to become one of the best in the country.

Its machinery consists of a double hoisting engine of 120-horse power, with fusee drum attachments. 1,000-horse power massive Cornish pumps are used for drainage, with 2 twenty-four inch columns, of the Allison & Bannan style of engines.

A spacious breaker will soon be erected of 1,000 ton capacity. Ventilation is effected by a 20-horse power fan; 48 hands are employed. This enterprise reflects great credit upon the company and the officers in charge, for the substantial improvement made and the admirable selections and location provided.

No. 47.—East Franklin.—*Philadelphia and Readiag Coal and Iron Company, Owners and Operators.*

This colliery is situated in Schuylkill county, two miles west of Tremont. It consists of a double slope sunk 378 yards deep on the north dip of the E vein, on a 35° dip, in 10 feet of coal. To the face of the east panel is 2,200 yards. Veering to south-west 16 breasts are open, with a run of 85 yards. Ninety-six yards of a plane open the counter, in which one breast is open. Nothing doing westward. Eleven men are engaged in robbing coal in the counter level. Its west gangway is being driven around an anticlinal, where a tunnel 80 yards north opens the E seam, and one breast open in its west gangway. Fire-damp prevails to some extent, occasioning an air-course to be cut 18 feet above the gangway for a return current, to avoid its contact with lamps. Mr. Elliot has charge of the management of the colliery.

Its ventilation is effected by a 35-horse power fan. The slope is used as an inlet. The current passes over the saddle or anticlinal, traversing each working place, and returning by safe channels to the fan.

Five engines, combined power=330-horse power, with 21 boilers, are in use; 5 pole pumps are used for drainage—three 18, one 16 and one 14-inch column; 119 men and 38 boys are employed; 23 mules, 60 wagons and 3,700 yards of tracks are used.

Monthly shipments 7,000 tons.

No. 48.—Lincoln, (Tunnel.)—*Levi Miller & Co., Operators.*

The colliery is situated in Schuylkill county, and west of Lorberry, on lands of the P. R. C. and I. Co. It consists of a north tunnel driven 175 yards to the B, or Buck Mountain vein. Its east panel is 1,000 yards long, in five feet of coal, on a 30° dip. The tunnel is continued still further 212 yards and opens the L. V. vein in five feet of coal in a 30° dip. Its eastern panel is open 1,772 yards, the coal mined out and idle.

Its western panel is open 1,695 yards, with eighteen breasts working in eight feet of coal on a 28° dip. Still another tunnel has been open 800 yards west of the old one, running north 142 yards, opening the L. V. vein in five feet of coal on a 43° did.

Its east and west panels are each 100 yards long; 4 breasts are working on each; an outlet has been opened 82 yards to the surface. It is intended to continue the extension of this tunnel 60 yards further for the purpose of opening the underlying vein. Furnace ventilation has been adopted for this colliery, which was found adequate for its purpose.

Machinery in use.—A 40-horse breaker engine, with 3 good boilers; 140 men and 35 boys are employed; 20 mules, 45 wagons and 4,700 yards of tracks are used. Monthly shipments, 6,000 tons.

No. 49.—Rauch Gap.—*W. H. John, Operator.*

The colliery is situated at Rauch Gap, in Schuylkill county, on lands of the P. R. C. & I Co. It consists of a drift opening on the D vein. Its east panel is 230 yards long, with one breast working. It being a small landsale colliery, only employing 6 hands. Mining is made safe in this small place.

No. 50.—Bear Valley.—*Frank Leisenring, Operator.*

This colliery is situated in Northumberland county, three miles north of Mt. Carmel, on disputed lands. It consists of a counter drift in the Lykens Valley vein, 500 yards in length, in 7½ feet of coal; it being a landsale colliery requiring no extended remarks.

No. 51 —Red Mountain.—*Wm. H. Kunble, or heirs, Operators.*

This colliery is situated east of Tremont, on the Philadelphia and Reading Coal and Iron Company's lands, but nothing has been done here since 1873.

No. 52.—North Side.—*Edward Miller, Operator.*

This colliery is situated in Lykens Valley, three miles west of Gratztown. It consists of a drift opening on the Lykens Valley vein on its north dip, in 9 feet of coal. The colliery may be classed among landsale collieries for supplying its surroundings for domestic consumption. Three breasts are working, employing 12 hands, and using 3 mules and 5 wagons, having 1,300 yards of track laid.

No. 53.—Red Ash Tunnel.—*Bickel & Auchmuty, Operators.*

This colliery is situated three miles from Helfenstine, in Northumberland county, on lands of Bickel, Auchmuty and others. It consists of a tunnel driven 102 yards north, opening the Lykens Valley vein in its north dip in 10 feet of coal, upon a 70° dip, with east and west gangways opened; its east gangway is 370 yards long and extending the same with opening breasts, headings, &c.; its west gangway is 268 yards long, and are extending the same, opening breasts, headings, &c. The tunnel is continued still north to open the underlying seams, with every promising prospect of seccess in their undertaking, the owners being very energetic men, and under their management a largely productive operation is anticipated.

At present, 10 men are employed; eventually buildings will be erected to answer the requirements of the colliery. No casualties are reported. Ventilation is effected by natural currents, which, for the present, affords an ample supply of air for mining purposes.

Fifty-three collieries have been inspected, and statements of their actual condition recorded and reported on, as may be seen by the following, viz: 468 visits of inspection have been made, of which 26 were visits attending inquests, &c.

477 miles were traveled on common roads.
4,805 miles were traveled on railroads=5,282 miles.
42 slopes, 5 shafts and 60 drifts are in active operation.
824 breasts are working, with chutes, extension of gangways, &c.
182 steam engines, with 10,445-horse power are in use.
31 steam suction fans=4,553-horse power are used for ventilation.
64 steam and other pumps=644-horse power are used for drainage.
514 steam boilers are in use.
7,531 hands are employed, *i. e.* 5,666 men and 1,865 boys.
911 mules, with 2,579 wagons are in use.
546 miles of gangways, and 3¼ miles of tunnels are worked.
—— tons of coal were sent to market.
—— tons of coal were consumed in the district.
26 persons lost their lives during the year; 8 of whom died subsequently of their injuries—2 were boys. Leaving 19 widows and 49 orphans.
150 persons were maimed and injured. That for every 290 persoms employed, one person lost a life, and for each 50 persons employed, one person was maimed and injured.

Maps of Shamokin District Collieries for 1874.

1. Short Mountain	1 slope.	20. Kalmia	1 drift.
2. Big Lick	1 slope.	21. Phœnix Nos. 2 and 3	2 slopes.
3. Williamstown	1 slope.	22. Upper Rauch Creek	1 slope.
4. Stewartsville	1 slope.	23. Lower Rauch Creek	2 slopes.
5. Moreton	1 slope.	24. Reliance	1 slope.
6. Cameron	1 slope.	25. Enterprise	1 slope.
7. Hickory Swamp		26. Locust Spring	1 slope.
8. Hickory Ridge		27. Mariam	1 slope.
9. Burnside		28. A. S. Wolf	1 slope.
10. Buck Ridge		29. Otto's Nos. 2 and 3	3 slopes.
11. Henry Clay		30. Colket	1 slope.
12. Bear Valley		31. West End	1 drift.
13. George Fales		32. Eureka	1 drift.
14. Trevorton		33. Brookside	1 slope.
15. Daniel Webster		34. Tower City	1 slope.
16. Big Mountain		35. Pyne	2 slopes.
17. Ben Franklin		36. Middle Creek	1 shaft.
18. Helfenstine		37. Lincoln	1 drift.
19. Diamond			

Thirty-seven maps of the different coal tracts are now on record, and are placed in the vault of the Merchant's Exchange Bank, Pottsville, for better safety, &c

REPORT

OF THE INSPECTOR OF COAL MINES OF THE WYOMING COAL FIELD, LUZERNE COUNTY, LYING EAST OF AND INCLUDING JENKINS TOWNSHIP, FOR THE YEAR 1874.

His Excellency, JOHN F. HARTRANFT,

Governor of the Commonwealth of Pennsylvania:

SIR:—In compliance with the requirements of an act of the General Assembly, approved the 3d day of March, A. D. 1870, providing for the health and safety of persons employed in coal mines, &c., I have the honor to herewith submit my report for the year ending the 31st day of December, 1874.

The total number of casualties in the year 1873, were 223—54 deaths and 169 accidents, and in 1874, were 158—69 deaths and 89 accidents, which were not fatal, showing a decrease of 65 accidents in 1874.

I have arranged my report for 1874, in a tabulated form. By reference, it will be found that table No. 1, contains a list of the names of each person who died from injuries received in and about the coal mines and collieries of this district; also the cause of each, with a list of the number of widows and orphans. In table No. 2, will be found a list of accidents, which have not resulted fatally and the cause of each. Table No. 3, contains a list of, and the number of coal mines and collieries, and the general condition of each. In table No. 4, will be found the number of steam engines and boilers at each colliery, the date when last inspected and their condition. Table No. 5, contains a list of the local coal sales and abandoned mines. Table 6, contains a list of the names of all the collieries that have furnished maps, &c., to the inspector.

I urgently recommend that each mine inspector shall be furnished with at least 200 copies of the "Mine Inspector's Report," for distribution, and also that an appropriation of $1,500 should be made for the purpose of making a good geological map of the Lackawanna and Wyoming coal fields, to be published with the mine inspectors report for 1875, or as soon as completed.

The mines in this district are in a good and safe working condition. The ventilation is good in all the mines with a very few exceptions, and that is where there is no explosive gas.

I would like to impress upon the minds of parties having charge of coal mines and collieries, the importance of having a stringent code of mine regulations for the safety of employees, and in compelling a strict compliance of the same, if they do so. I am of the opinion that it will reduce the casualties at least 50 per cent.

It would be an improvement on last year's report, if the State Printer would publish this year's report as it is forwarded by the inspector. My report of last year was cut up so that I did not recognize it after it was published.

I take this opportunity of returning my sincere thanks to all parties with whom I had any official intercourse, for courtesies extended to me in my official capacity.

Respectfully submitted.

PATRICK BLEWITT,
Inspector of Coal Mines, &c.

SCRANTON, *February* 26, 1875.

TABLE No. 1.

List of deaths reported to the Inspector of the Eastern District of the Wyoming Coal Fields, Luzerne county, State of Pennsylvania, and the cause as shown by his investigation for the year ending the 31st day of December, 1874.

DATE. 1872.	Names.	Age.....	Mar'ed or single.	Wife.....	Children.....	Colliery where accident occurred.	Date of investigation.....	Nature or cause of death or accident.
Jan. 16,	Wm. Williams....	20	S.	....	2	Cayuga.....colliery....	Jan. 17,	Killed by a fall of roof.
20,	Abraham Hoity..	36	M.	W.	3	Sibley.....do.....	21,	Killed by a fall of top coal.
30,	Ig. Gimanosky...	37	M.	W.	4	Rolling Mill .....do.....	30,	Killed by a fall of roof.
30,	Philip Hartman..	70	M.	W.	....	.....do .....do.....	30,	Seriously injured by a fall of roof; died next day.
Feb. 2,	Michael Mohan...	21	S.	....	....	Dodge.....do.....	Feb. 2,	Killed instantly by a fall of roof.
5,	Wm. Randall.....	20	M.	W.	....	Taylor.....do.....	6 & 9,	Seriously injured by a fall of top coal; died on 8th.
7,	John Nelson.....	22	S.	....	....	Greenwood.....do.....	9,	Killed by cars whilst walking on the plain, outside.
26,	James Maughan..	43	M.	W.	5	Corey colliery, No. 5 tunnel..	27,	Killed instantly by a fall of roof.
Mar. 2,	John Smith.....	17	....	....	....	Diamond Shaft....colliery....	Mar. 3,	Killed; found dead under a car in the mine.
6,	Pat. M'Loughlin..	40	M.	W.	6	Von Storch.....do.....	7 & 9,	Killed; run over by cars in the slope in the mines.
24,	James Swift.....	42	M.	W.	6	Green Ridge.....do.....	25,	Killed by a fall of roof.
April 6,	Michael Kenny...	26	M.	W.	2	Jermyn's Shaft .....do.....	Apl. 7,	Killed by a fall of rock roof.
9,	Frank M'Donald..	40	M.	W.	4	National Anthracite..do.....	10,	Killed whilst in the act of forcing a cartridge into a drill hole with the end of his drill; it exploded, killing him.
9,	Charles Early	35	M.	W.	4	Pyne Shaft.....do.....	11,	Died 18 hours after getting injured by a piece of coal from a blast; he went on the opposite side of the pillar from the blast, and got hit by a large piece of coal.
10,	John Wyant.....	32	S.	....	....	No. 4, S., Rolling Mill mines,	11,	Killed by a fall of top and bony coal.
11,	Anthony Clifford,	35	M.	W.	1	Ontario colliery.....	13,	Killed; he was riding on the front end of the car; got caught between the pillar and car; died five hours after.
14,	Michael Marley...	65	M.	W.	....	Leggitt's Creek colliery.....	16,	Seriously injured; jammed between a car and rib; died on the following Saturday.
15,	Michael Timblin..	38	M.	W.	....	Fellows' colliery.....	17,	Killed; a cartridge exploded whilst forcing it into a drill hole, burning and also injuring him seriously; died in a few hours.

TABLE No. 1—CONTINUED.

DATE. 1872.	Names.	Age.....	Mar'ed or single,	Wife.....	Children.....	Colliery where accident occurred.	Date of investigation.....	Nature or cause of death or accident.
April 23,	John Clark.....	10	....	....	....	White Oak.....colliery..	Apl. 24,	Killed; caught in the pony rolls.
23,	Peter Walsh.....	34	M.	W.	3	Stark Shaft .....do....	23,	Killed by a fall of rock, which is between the bottom and top bench of coal.
May 5,	John Leonard	27	S.	....	....	Central Shaft.....do....	May 6,	Seriously injured by a fall of top coal; died on the 12th of May.
13,	Wm. Richards....	35	M.	W.	4	No. 9 Shaft, Pittston.....	14,	Killed by a fall of roof, which was not properly propped.
18,	Patrick Purcell...	14	....	....	....	No. 5 Shaft, Jenkins township,	18,	Killed by being caught between a car and pillar.
23,	Michael Malone ..	28	M.	W.	3	No. 7 Shaft, Jenkins township,	25,	Killed by a fall of slate roof.
23,	Charles Williams,	45	M.	W.	5	Twin Shaft, Pittston.....	26,	Killed by a fall of a loose piece of rock, which was lying on the bottom bench of coal.
30,	Thos. Lewellyn...	43	M.	W.	5	No. 2 Slope, Jenkins township,	June 2,	Seriously injured by a fall of roof; died next day.
June 5,	Wm. J. Mooney ..	20	S.	....	....	Hampton colliery.....	8,	Supposed to have been slightly injured by falling on the car hook whilst in the act of shoving it with his back; the car hook hit his spine; this occurred on the 25th of May; he worked three days after; he then took sick and died, on June 4, of the injuries he received.
6,	Patrick Cawley...	28	M.	W.	....	Sibley colliery	9,	Seriously injured by a fall of roof; died three hours after.
22,	James Cafferty....	18	S.	....	....	National mines.....	24,	Killed by being caught between a car and the rib.
27,	John Cassidy.....	22	S.	....	....	Diamond Shaft..... colliery..	29,	Killed by a fall of top coal.
30,	John Duggan.....	23	S.	....	....	Oxford Shaft.....do....	July 1,	Killed by a fall of top coal.
30,	John C. Williams,	69	M.	W.	....	No. 6 Slope, Pittston.....	Jun. 30,	Killed; caught between a trip of cars and the rib.
30,	Ed. Gallagher	31	M.	W.	5	Cayuga Shaft colliery	July 2,	Killed by a fall of roof.
July 1,	Michael Fadden..	14	....	....	....	No. 11 Shaft, Jenkins twp....	3 & 8,	Severely injured by being kicked by a mule; died on the night of the 3d.
2,	Michael Bourke ..	....	M.	W.	....	No. 2 Slope.....do.....	3,	Seriously injured by a fall of roof; died on the 4th of July.
13,	John Golden.....	36	M.	W.	4	Gipsey Grove colliery	14,	Seriously injured by a fall of roof; died on the night of the 13th.

	14,	Thomas Smith....	14	.....	...	Carbon Hill colliery.....		15,	Killed instantly by falling in front of the car; the car dumped, and the frame caught his head between the rail and car frame outside.
	20,	Ab'm Winegart...	33	M.	W. 5	Roaring Brook colliery.....		21,	Seriously injured by a premature blast; died same same evening.
	28,	Richard Maloney,	60	M.	W.	No. 4 Shaft, Pittston.....		29,	Killed by a fall of top coal.
Aug.	7,	Rudolph Shmurtz,	36	M.	W. 5	No. 8.....do.....	Aug.	8,	.....do.....do.
	7,	Nicholas Owens...	23	M.	W.	....do ..... do.....		8,	.....do.....do.
	8,	John Harte.....	20	S.	.....	No. 7 Shaft, Jenkins township,		9,	Killed by being caught between two cars.
	12,	Wm. Moran	20	S.	.....	Eddy Creek shaft		13,	Killed by walking into the shaft.
Sept.	2,	Patrick Coleman..	21	S.	.....	Stark shaft.....	Sept.	3,	Killed by a fall of top coal.
	7,	Peter Young.....	35	M.	W. 4	Roaring Brook colliery.....		8,	Killed by a fall of roof.
	9,	Patrick Flannery,	40	M.	W. 2	No. 5 Shaft, Jenkins township,		10,	Killed by a fall of top coal.
	11,	M. Braddican.....	11	.....	.....	Gipsey Grove .....colliery....		14,	Killed by being caught in the breaker machinery.
Oct.	3,	John Embleton...	55	W.	3	Seneca.....do.....	Oct.	5,	Seriously injured by being hit by a piece of coal from a blast; died shortly after.
	8,	John Coyne.....	20	S.	.....	Greenwood.....do.....		9,	Killed instantly by a fall of roof.
	9,	Wester Willis....	26	S.	.....	Columbia.....do.....		12,	Seriously burnt by fire-damp; died next day.
	12,	Geo. Jackson	52	S.	.....	Nay Aug.... ....do.....		13,	Seriously injured by falling between an empty trip of cars on the outside plane; died next day.
	17,	John Phillips.....	13	.....	.....	Cayuga... .....do.....		20,	Killed; caught between loaded cars and a pillar.
	21,	Frank Mullen....	29	M.	W.	Greenwood.....do.....		26,	Both instantly killed by a fall of roof.
	24,	John Lacy.....	22	S.	.....	....do.....do.....		26,	
	31,	M. H. Donnelly...	25	S.	.....	Von Storch.....do.....	Nov.	2,	Killed by the discharge of a blast.
Nov.	2,	Pat. G. Gehegan ..	28	M.	W. 4	....do..... do.....		2,	Killed; caught between the bumpers of two cars.
	4,	Patrick Hughes...	22	M.	W.	Central Shaft.....do.....		5,	Killed instantly by a fall of top coal.
	10,	Thomas Webster,	16	.....	.....	Von Storch.....do.....		11,	Killed; caught between cars and rib.
	10,	Edward Reardon..	15	.....	.....	Rackett's Brook breaker;.....		11,	Seriously injured; caught between cars; died four hours after.
	11,	Thomas Carlass...	36	M.	W. 5	No. 6 Shaft, Jenkins township,		14,	Killed by the falling of a prop.
	14,	John M'Guire.....	15	.....	.....	Scranton Coal Co.'s slope.....		17,	Kicked by a mule; died next day from the effects.
	14,	Michael Walsh ...	40	W.	4	No. 4 Slope, Pittston.....		16,	Killed by a fall of top coal.
	17,	John Eanes.....	14	.....	.....	Spring Brook colliery	19 &	25,	Seriously injured; he was riding on a car coming down a runaway, when it jumped the track; his head got caught between the car and roof; the car knocked a prop down, letting the roof fall on him; died on December 14.
	17,	Elias Davis.....	.....	M.	W. 2	Seneca colliery.....	18 &	24,	Killed by a fall of roof.
	17,	Henry Jenkins	.....	M.	W. 2	....do.....do.....	18 &	24,	Killed by the same fall.
Dec.	7,	Reese N. Reese....	40	M.	W.	Taylor's shaft.....	Dec.	8,	Killed by a fall of roof.
	14,	John Coolican....	50	M.	W. 11	Jones, Simpson & Co.'s mines,		15,	Killed instantly by a fall of roof.
	19,	Thomas Watkins..	12	.....	.....	Rackett's Brook breaker		22,	Killed by being caught in the breakers.
	24,	W. W. Williams..	23	M.	W. 1	Dodge Shaft		29,	Seriously injured by a fall of roof; died on the 28th.

Total number of persons killed in the Eastern district of the Wyoming coal fields, 69; leaving 38 widows and 112 children.

The following is a recapitulation and classification of the 69 fatal accidents that occurred during the year:

Killed by falls of roof	24
Killed by falls of coal	13
Killed by falls of rock	2
Killed by premature blasts	6
Killed by fire-damp explosions	1
Killed by mine cars inside	11
Killed by mine cars outside	4
Killed by railroad cars outside	1
Killed by falling into breakers	3
Killed by being kicked by mules	2
Killed by falling down a shaft	1
Killed by a prop falling	1
Total number of deaths	69

TABLE No. 2.

List of accidents reported to the Inspector of the Eastern District of the Wyoming Coal Fields, Luzerne county, State of Pennsylvania, and the cause as shown by his investigation, for the year ending December 31, A. D. 1874

DATE. 1874.	Names.	Age.....	Mar'ed or single,	Wife.....	Children.....	Colliery where accident occurred	Date of investigation.....	Nature or cause of death or accident.
Jan. 2,	John M'Garrin....	50	M.	W.	1	Leggitt's Creek colliery	Jan. 5,	Slightly injured by an explosion of fire-damp, whilst in the act of putting up brattish.
3,	Peter M'Hale.....	14	.....	.....	....	No. 1, Slope, Olyphant	6,	Arm broken whilst coupling cars.
8,	Thomas Bennett..	38	M.	W.	....	Sloan colliery.....	8,	Slightly injured by premature discharge of blasts.
21,	Martin Cain	15	.....	.....	....	Leggitt's Creek colliery.....	22,	Arm broken by being caught between car and pillar.
27,	David Williams..	27	S.	.....	....	Meadow Brook.....do.....	28,	Had two of his ribs broken by a premature blast.
28,	Daniel Harris.....	21	S.	.....	....	Sloan.....do.....	29,	Slightly injured by an explosion of fire-damp.
29,	William Millett...	14	.....	.....	....	Spring Brook.....do.....	30,	Accident caused by stepping in front of car and falling under it, jamming him.
Feb. 2,	Michael Manix...	14	.....	.....	....	Dodge.....do.....	Feb. 3,	Accident caused by stepping on the end of car and falling under it, jamming him.
2,	John Masters.....	.....	.....	.....	....	Pyne.....do.....	3,	Seriously injured by an explosion of a keg of powder, by carelessly handling naked lamp over it, whilst making a cartridge; gross carelessness.
2,	John Bray.....	.....	.....	.....	....	..do.....do.....	3,	
2,	George Arnold....	.....	.....	.....	....	..do.....do.....	3,	
4,	Jacob Brake.....	20	S.	.....	....	Pine Brook.....do.....	4,	Seriously burned by an explosion of fire-damp.
11,	Dominick O'Boyle	40	M.	W.	....	Von Storch.....do.....	11,	Slightly injured by a fall of roof.
24,	James Melody....	32	.....	.....	....	Pine Brook.....do.....	24,	Injured by an explosion of fire-damp.
24,	Reese Jones.....	26	.....	.....	....	....do.....do.....	24,	.....do.....do.
25,	Timothy Noon....	.....	.....	.....	....	Pyne.....do.....	25,	Injured by a blast; he was not aware of its going off.
26,	Joseph Hughes....	.....	.....	.....	....	Central.....do.....	26,	Leg broken by being run over by a car.
26,	Dennis Kane	60	.....	.....	....	Roaring Brook.....do.....	28,	Injured by being caught by screens in breaker.
28,	Robt. Campbell...	15	.....	.....	....	Tripp's slope.....	28,	Arm fractured by car running against it in mines.
Mar. 5,	Patrick O'Neil....	33	.....	.....	....	No. 2 shaft, Dunmore.....	Mar. 6,	Collar bone broken by a fall of roof.
5,	Pat'k Hennigan ..	15	.....	.....	....	Spring Brook colliery.....	9,	Seriously injured by an explosion of powder whilst fooling with it.
11,	David Lewis.....	45	.....	.....	....	Von Storch.....do.....	11,	Slightly injured by being run over by a car.
12,	David W. Griffith,	35	.....	.....	....	....do.....do.....	12,	Slightly injured by a fall of roof.
14,	Wm. Dunston....	27	.....	.....	....	Powderly slope.....	14,	Injured by a fall of gravel in a new tunnel.

TABLE No. 2—CONTINUED.

DATE. 1874.	Names.	Age.....	Mar'ed or single,	Wife.....	Children.....	Colliery where accident occurred.	Date of investigation.....	Nature or cause of death or accident.
Mar. 14,	Robert Loughner,	....	....	....	....	Grand Tunnel	Mar. 15,	Leg broken by a fall of roof.
18,	Patrick Fox.....	29	M.	W.	2	Leggitt's Creek colliery.....	18,	Slightly burned by an explosion of fire-damp.
19,	Patrick Hopkins..	45	....	....	....	Cayuga Shaft.....do.....	19,	Leg broken by a fall of top coal.
23,	Peter Blitler.....	16	....	....	....	Stark Shaft.....do.....	24,	Leg broken by a fall of coal and roof.
23,	Frank Keane.....	....	....	....	....	Hillside Shaft.....do.....	24,	Leg broken; hit by a piece of coal from a blast.
24,	Thomas Murray..	26	S.	....	....	No. 6 tunnel, Corey do.....	26,	Leg broken by a fall of roof and coal.
24,	John Sullivan....	22	S.	....	....	Hampton Shaft ....do.....	27,	Injured by a piece of coal rolling on him.
Apil 4,	Andrew Galison..	25	S.	....	....	Sibley.....do.....	Apr. 8,	Leg broken by being caught by cars.
4,	Charlie Searing...	17	....	....	....	Capouse Breaker.....	4,	Leg and arm broken; fell in the breaker, 43 ft. high.
4,	Thomas Clark....	32	M.	W.	2	Seneca slope.....	9,	Leg broken by a fall of rock.
6,	Casper Fahner....	33	M.	W.	....	Taylor Shaft colliery.....	8,	Injured; caught between timbers and brake handle.
11,	Anthony M'Hale,	....	....	....	....	No. 2, Spring Brook colliery..	14,	Leg broken by a fall of roof, while barring it down.
13,	Patrick Grimes ...	13	....	....	....	No. 1, Diamond Culm dump,	14,	Leg broken whilst unhitching his mule; he slipped in front of car and it run over his leg.
24,	Patrick Monaghan	18	S.	....	....	No. 3 Shaft, Carbondale.....	25,	Collar bone broken by being caught between cars.
May 5,	Mark Sullivan....	....	....	....	....	Carbon Hill colliery.....	May 7,	Seriously injured by a car.
7,	Thomas Kelly....	28	M.	W.	2	Tripp's slope.....	8,	Seriously injured by a fall of roof.
8,	James Hall.....	....	....	....	....	Rough and Ready shaft.....	8,	Seriously burned on back by explosion of fire-damp.
11,	John Eatan.....	20	S.	....	....	Eaton & Co., new shaft.....	11,	Injured by falling down the shaft, a distance of 35 ft.
12,	Michael Madigan,	....	....	....	....	Pine Brook Shaft colliery.....	12,	Leg broken by a car.
13,	William Keating,	....	....	....	....	No. 9 Shaft.....do.....	14,	Leg broken by a fall of roof.
13,	John M'Hale.....	....	....	....	....	....do.....do.....	14,	.....do.....do.
13,	Patrick M'Hale...	....	....	....	....	....do.....do.....	14,	Ankle dislocated by a fall of roof.
16,	John Gallagher...	10	....	....	....	Carbon Hill.....do.....	19,	Leg cut off; caught between wire rope and large shieve wheel at head of plane; riding on the rope.
19,	John Sharkey....	13	....	....	....	Green Ridge.....do.....	20,	Seriously injured about head; hit by a run away car.
19,	John M'Weeny...	45	M.	W.	4	Grassy Island.....do.....	21,	Seriously injured by a fall of coal.
20,	Patrick Genty....	14	....	....	....	Continental.....do.....	22,	Seriously injured; kicked by a mule.
25,	Noah Roderick...	40	....	....	....	Scranton Coal Co.'s mines....	27,	Injured by a fall of rock roof.
26,	John Thomas.....	40	....	....	....	Hampton Shaft colliery.....	28,	Injured by a fall of slate roof.
27,	Patrick Murphy..	20	....	....	....	No. 2 slope, Jenkins township,	30,	Hand mutilated by a fall of rider coal.

June 3,	Wm. G. Evans....	40	M. W.	6	Sloan colliery.....	June 3,	Skull fractured by a fall of roof.
6,	Henry Williams..	21	M. W.	2	Continental colliery.....	10,	Injured by a fall of roof.
9,	Reese Williams...	31	M. W.	1	Sloan colliery.....	11,	Seriously injured by a premature blast.
11,	Patrick Butler....	30	.....	.....	Roaring Brook colliery.....	13,	.....do.....do.
20,	Patrick Conner...	35	M. W.	3	Dawson Shaft.....do.....	22,	Leg broken by a fall of roof.
25,	John O'Rourke...	36	.....	.....	Green Ridge.....do.....	26,	Hip dislocated and otherwise injured by fall of roof.
30,	David Morgan....	14	.....	.....	Spring Brook.....do.....	July 3,	Leg broken by a prop falling on it.
July 17,	Isaac Edwards....	.....	.....	.....	Bellevue Slope....do.....	17,	Injured; was sinking an air shaft, he jumped on the rope to slide to the bottom of the shaft, when the handle of the windlass broke, letting him fall to the bottom.
28,	John Hefferon....	.....	.....	.....	No. 4 shaft, Pittston.....	29,	Leg broken by a fall of coal.
Aug. 12,	Anthony Lynott..	23	M. W.	....	Cayuga Shaft colliery.....	14,	Seriously injured by a premature blast.
12,	Edward Wells....	20	.....	....do.	.....do.....	14,	.....do.....do.
15,	John Dougherty..	50	.....	.....	Winton Slope....do.....	19,	.....do.....do.
18,	John Frees.....	23	S.	.....	Meadow Brook...do.....	20,	Both legs broken by a fall of roof.
19,	Chas. Dougher....	40	M. W.	5	Eaton & Co.'s mines, Archbald,	21,	Leg broken by a fall of roof.
22,	Patrick Arthurs..	45	M.	.....	Scranton Coal Co.'s colliery..	25,	Injured by being caught between cars and pillars.
Sept. 3,	John Barrett.....	30	M. W.	3	No. 2 slope, Jenkins township,	Sept. 4,	Seriously injured by a premature blast.
7,	John M'Andrew..	.....	.....	.....	No. 2, Diamond slope.....	7,	Leg broken by a fall of rock.
7,	Anth'y M'Donnell	32	M. W.	2	Roaring Brook colliery.....	8,	.....do.....do.
29,	George Bryant....	16	.....	.....	Mill Ridge.....do.....	Oct. 2,	Leg broken and shoulder out of joint by a mule being thrown on the track and car running off.
27,	John Roberts.....	36	M. W.	4	Von Storch.....do.....	29,	Seriously injured by a premature blast.
30,	Richard O'Hara ..	20	.....	.....	Gipsey Grove .....do.....	30,	Leg broken by being caught under a car.
30,	Patrick Dockerty,	13	.....	.....	Grassy Island.....do.....	31,	Injured; caught under a loaded car in the mine.
31,	Edward J. Davis,	45	.....	.....	Central Shaft .....do.....	Nov. 4,	Foot broken close to ankle by a fall of roof.
Nov. 11,	Patrick Cochrane,	38	.....	.....	Carbon Hill.....do.....	18,	Leg broken by a fall of top coal.
17,	John S. Williams,	.....	.....	.....	Seneca Slope.....do.....	18 & 21,	Seriously injured by a fall of roof.
18,	Martin Nearey....	14	.....	.....	Continental Shaft..do.....	20,	Hip dislocated by a fall of coal.
19,	David James.....	26	M. W.	.....	....do.....do.....	21,	Seriously injured by a premature blast.
23,	Michael Shields...	25	S.	.....	Taylor Shaft.....do.....	26,	Leg broken by a fall of roof.
30,	Wm. Williams....	40	.....	.....	Spring Brook.....do.....	30,	Burned by an explosion whilst filling a cartridge.
30,	Evan Watkins....	17	.....	.....	....do.....do.....	30,	.....do.....do.....do.....do.
Dec. 2,	Nick Holstein	30	S.	.....	Taylor Shaft.....do.....	Dec. 2,	Leg broken by a fall of coal.
8,	Rich'd M. Harris..	35	M.	.....	Dodge.....do.....	9,	Injured by a fall of slate.
12,	John Coombs.....	28	M.	.....	Pyne.....do.....	14,	Injured by a premature blast.
14,	Elias Evans	70	M. W.	5	Spring Brook.....do.....	15,	.....do .....do.
18,	Pat'k Mulchrona,	12	.....	.....	Leggitt's Creek shaft.....	23,	Leg broken by being caught between two cars.
22,	Wm. Besucker....	40	.....	.....	Sibley colliery.....	23,	Arm crushed by being caught between screen and gearing; it had to be amputated.

Total number of accidents in the Eastern district of the Wyoming coal fields, during the year—89.

The following is a recapitulation and classification of the accidents that occurred during the year:

Injured by falls of roof	7
Injured by falls of gravel	1
Injured by falls of rock roof	2
Injured by falls of slate	1
Injured by explosions of powder	3
Injured by piece of coal falling	2
Injured by falling down shaft	2
Injured by cars	8
Injured by being kicked by a mule	1
Injured by being caught in screens in breaker	1
Injured by being caught between timbers and brake handle	1
Leg broken by cars	6
Leg broken by falls of roof	6
Leg broken by falls of top coal	4
Leg broken by falls of coal and roof	2
Leg broken by a piece of coal from a blast	1
Leg broken by falls of rock roof	4
Leg broken by prop falling	1
Leg and arm broken by falling in the breaker	1
Leg amputated by wire rope on outside plane	1
Both legs broken by a fall of roof	1
Arm broken whilst coupling cars	2
Arm broken by car running against it	1
Arm amputated by being caught between screen and gearing	1
Arm mutilated by fall of rider coal	1
Foot broken by a fall of roof	1
Hip dislocated by a fall of coal	1
Ankle dislocated by a fall of roof	1
Collar bone broken by a fall of roof	1
Collar bone broken by cars	1
Rib broken by a premature discharge of blast	1
Injured by premature discharge of blasts	12
Injured by explosions of fire-damp	10
Total	89

Tabulated Report of the Condition of the Coal Mines in the Eastern District of the Wyoming Coal Fields, Luzerne county, lying East of and including Jenkins Township, for the year ending 31st day of December, A. D. 1874.

TABLE No. 4.

Report of the condition of steam boilers and steam engines in the Eastern District of the Wyoming Coal Fields, for the year ending December 31, 1874.

No. of coal mine or colliery	Name of colliery.	No. of boilers	Dimens's. Length in feet.	Diam'r inches.	Pressure	Steam gauge or safety valve	Date of boiler examination, 1874	Present condition	No. hoisting engines	How many h. power	No. pumping engns	How many h. power,	No. engines in mines,	How many h. power,	No. breaker engines,	How many h. power,	No. fan engines	How many h. power,
1..	No. 2, or Port Griffith	3	46	30	80	Both.	Nov. 10, 11	Good & safe.	1	40			4	120				
	....do.....do	3	46	30	80	"		....do.										
2..	Everhart colliery	3	30	40	60	"	[Worked 2 mo's in '74		1	40					1	25		
3..	No. 6 shaft colliery	3	36	30	70	"	Nov. 29,	Good & safe.	1	40								
	No. 6 shaft breaker	3	36	30	70	"	29,	....do.							1	25		
4..	No. 5 shaft colliery	3	36	30	70	"	29,	....do.	1	40	1	10						
5..	No. 11.....do	3	36	30	70	"	29,	....do.	1	40								
6..	No. 7.....do	5	36	30	70	"	22,	....do.	1	40	1	120	1	10				
7..	No. 4.....do	4	36	30	70	"	18,	....do.	1	40							1	20
	No. 4.....do	3	36	30	70	"	19,	....do.	1	40	4	80					1	20
8..	No. 4 slope colliery	2	20	30	70	"	29,	....do.	1	20	3	60						
		3	36	30	75	"	29,	....do.										
9..	No. 5 slope or Grand Tunnel	3	30	30	70			Abandon'd	1	20								
10..	Tompkins colliery	6	30	30	60	Both.	December		1	40	1	30			1	15		
11..	Maryland Nat. Anth. colliery	3	32	30	75	.....		Idle for '74.	1	80								
	....do.....do	1	32	30	60			....do.							1	15		
12..	No. 9 shaft colliery	3	36	30	70	Both.	Nov. 29,	Good & safe.	1	40								
13..	No. 10.... do	3	36	30	80	"	5,	....do.	1	40			2	50	1	30		
	....do.....do	3	36	30	80	"	29,	....do.	1	40	1	40	1	25				
14..	No. 8.....do	5	36	34	60	"	29,	....do.	1	40			1	30	1	30		
15..	No. 6 slope colliery	3	36	30	60	"	29,	....do.	2	40			2	40				
16..	Seneca....do	2	32	30	60 to 75	"	29,	....do.	1	60								
	....do.....do	2	32	30	60 to 75	"	Dec. 3,	....do.							1	30		
17..	Ravine shaft colliery	4	30	30	60 to 75	"	3,	....do.	1	60					1	20		
18..	Beaver mines	2	33	36	75	"	Nov. 23,	....do.							1	25		
19..	Rock Hill tunnel	2	20	30	60	"	Dec. 8,	....do.							1	25		

TABLE No. 4.—CONTINUED.

No. of coal mine or colliery	Name of colliery.	No. of boilers	Dimens's. Length in feet,	Dimens's. Diam'r inches,	Pressure	Steam guage or safety valve	Date of boiler examination, 1874	Present condition	No. hoisting engines,	How many h. power,	No. pumping eng'es,	How many h. power,	No.engines in mines,	How many h. power,	No. breaker engines,	How many h. power,	No. fan engines	How many h. power,
20	Twin shaft....colliery	2	30	30	60 to 75	Both.	Nov. 29,	Good as safe.	1	60			1	30	1	40		
	....do.....do.....	2	30	30	60 to 75	"	Dec. 3,	.....do.....			1	10						
21	Rough and Ready do.....	3	36	32	60	"	.....	.....do.....	1	60					1	30		
	...do.....	3	36	32	60	"	.....	.....do.....										
22	Columbia tunnel.....	1	32	30	60	"	July 13,	.....do.....							1	20		
23	Butler shaft....colliery	4	50	32	65	"	Sept. 29,	.....do.....	1	10					1	40	1	20
	...do.....do.....	3	28	32	65	"	Dec. 26,	.....do.....					1	30				
	No. 1 shaft.....do.....	5	36	36	75	"	Dec. 8,	.....do.....										
	No. 2.....do.....	3	36	36	50	"	Nov. 27,	.....do.....			1	30						
	No. 3.....do.....	3	36	30	70	"	Nov. 27,	.....do.....			1	30						
	No. 5 slope.....do.....	21	30	30	75	"	Dec. 5,	.....do.....										
	No. 2 breaker.....	3	30	30	70	"	Jan. 10, 75,	.....do.....							1	40		
	Central breaker.....	3	36	30	75	"	New	.....do.....										
24	Ontario.....colliery	8	36	30	.....	.....	Idle in 71,	.....do.....	2	70					1	25		
25	Enterprise.....do.....	3	30	30	80	Both.	Sept. 7, 74,	.....do.....	2	80					1	25		
	Hillside.....do.....	3	30	30	80	"	Oct. 13,	.....do.....										
	...do.....do.....	4	30	30	80	"	Nov. 17,	.....do.....	1	25					1	60	1	
26	Dawson shaft....do.....	3	36	30	75	"	Dec. 6,	.....do.....					1	25				
27	Stark.....do.....	5	36	30	75	"	Dec. 6,	.....do.....	1	40			2	20	1	40		
28	No. 12.....do.....	6	36	30	75	"	Dec. 6,	.....do.....	1	30	2	40	4	55	1	30		
29	Law.....do.....	9	36	30	75	"	Dec. 6,	.....do.....	1	40	1	40						
30	Spring Brook.....do.....	3	30	30	50	"	Jan. 10, 75,	.....do.....	1	11					1	40		
	...do.....do.....	3	30	30	50	"	Jan. 10,	.....do.....	2	80					1	35		
31	Oak Hill.....do.....	2	30	30	45	.....	Idle in 74,	.....do.....							1	35		
32	Carbon Hill .....do.....	6	28	26	70	Both.	Jan. 22,	.....do.....	2	90	1	60						
	Carbon Hill breaker.....	2	36	30	50	"	Jan. 18,	.....do.....							1	20		
	Carbon Hill slope.....	21	48	16	75	"	Jan. 18,	.....do.....	2	30								
			36	12	75	"												

	Carbon Hill slope	1	Locomotive			"	New	do	1	25										
	Carbon Hill, No. 1 shaft	4	36	28	70	"	Jan. 22,	do	1	35			1	35						
33.	Elliot, Kœrner's colliery	4	30	30	70	"	July 25,	do	2	100									1	15
	do do	4	30	34	70	"	July 25,	do							1	50				
34.	Pyno shaft do	3	30	34	85	"	Aug. 22,	do	2	400										
	do do	3	30	34	85	"	Aug. 30,	do			2	225							1	80
	do do	3	30	34	85	"	Oct. 13,	do					1	15						
	do do	4	30	34	85	"	Oct. 10,	do	1	10	1	60			1	60				
35.	Taylor shaft do	3	30	34	75	"	Nov. 25,	do	2	120	1	110							1	80
	do do	3	30	34	75	"	Dec. 8,	do							1	60				
	do do	3	30	34	75	"	Dec. 10,	do					3	133						
	do do	3	30	31	75	"	Dec. 12,	do												
36.	Corey shaft do	3	30	30	65	"	Nov. 29,	do							1	60				
37.	Stafford Brook do	4	30	30	65	"		Abandon'd in Nov	1	40					1	25				
	do do	2	30	34	75	"														
38.	Nat. Anthracite do	4	32	34	75	"	Nov. 3,	Good & safe.	2	60					1	25				
39.	Meadow Brook do	3	30	31	75	"	Aug. 12,	do	2	100										
	do do	4	30	34	75	"	Aug. 12,	do	2	40					1	45				
40.	Stafford Brook No. 2 colliery	2	36	34	60	"	Aug. 12,	do							1	15				
41.	Scranton coal co.'s colliery	4	32	34	75	"	Sep. 12,15,	do	1	60										
	do do	4	32	34	75	"	Sept. 21,	do	1	60	1	75			1	95				
42.	Dodge colliery	3	36	34	75	"	Nov. 26,	do	2	90										
	do do	3	36	31	75	"	Dec. 11,	do			1	95	1	6						
	do colliery breaker	3	36	31	75	"	Oct. 8,	do							1	60				
43.	Bellevue colliery	5	36	34	75	"	Oct. 30,	do	2	120	3	66			1	45				
44.	Bellevue slope do	4	34	31	75	"	Oct. 26,	do	2	120	1	80	1	20	1	40				
45.	Oxford shaft do	3	40	34	75	"	Oct. 5,	do	2	90	1	6								
	do do	3	40	34	75	"	Oct. 1,	do			2	18	2	65						
	do do	3	40	34	75	"	Sept. 28,	do							1	60				
46.	Central shaft do	3	30	31	75	"	Oct. 24,	do	2	120										
	do do	3	30	34	75	"	Oct. 21,	do			2	300								
	do do	3	30	34	75	"	Oct. 15,	do					1	15					1	75
	do do	3	30	34	75	"	Oct. 10,	do							1	80				
47.	Sloan shaft do	3	30	31	75	"	Dec. 1,	do	2	120										
	do do	3	30	34	75	"	Nov. 1,	do											1	60
	do do	3	30	34	75	"	Sept. 14,	do												
	do do	3	30	34	75	"	Oct. 28,	do			1	30			1	80				
48.	Archbald shaft do	3	30	34	75	"		Not used at present	2	120	1	150							1	60
	do do	3	30	34	75	"														
	do slope do	3	30	34	75	"	Nov. 11,	Good & safe.	1	20			1	20						
	do do	3	30	34	75	"	Nov. 11,	do							1	80				
49.	Continental shaft do	3	40½	34	75	"	Aug. 15,	do	2	150			1	80						
	do do	3	40½	34	75	"	Aug. 1,	do			1	95			1	40	1	60		

TABLE No. 4.—Continued.

No. of coal mine or colliery.	Name of colliery.	No. of boilers.	Dimens's. Length in feet.	Dimens's. Diam'r inches.	Pressure.	Steam gauge or safety valve.	Date of boiler examination, 1874.	Present condition.	No. hoisting engines.	How many h. power.	No. pumping eng'es.	How many h. power.	No. engines in mines.	How many h. power.	No. breaker engines.	How many h. power.	No. fan engines.	How many h. power.
49..	Continental shaft....colliery,	3	40½	34	75	Both.	July 27,	Good & safe.										
50..	Hampton shaft.....do....	3	36' 6"	34	75	"	Nov. 28,	.....do.....	2	100								
	....do.....do....	3	36' 6"	34	75	"	21,	.....do.....			1	95			1	80		
	....do.....do....	3	36' 6"	34	75	"	16,	.....do.....										
	....do.....do....	3	36' 6"	34	75	"	7,	.....do.....					2	80				
51..	Hyde Park shaft.....do....	2	38	34	75	"	.....	Not in use at pres't.	2	120								
	....do.....do....	2	38	34	75	"	.....				1	20			1	80		
52..	Capouse shaft .....do....	3	30	36	80	"	Oct. 1,	Good & safe.	2	80			1	10				
	....do.....do....	3	30	36	80	"	1,	.....do.....			1	70			1	40		
	....do.....do....	3	30	36	80	"	1,	.....do.....	2	80							1	55
	....do.....do....	3	30	36	80	"	1,	.....do.....										
53..	Mount Pleasant.....do....	4	25	30	80	"	.....	Idle last 6 months.	1	70								
	....do.....do....	1	20	30	80	"	.....						1	10				
	....do.....do....	1	16	42	80	"	.....								1	25		
54..	Fellows' local coal mine.....	2	30	30	70	"	Dec. 1,	Good & safe.			1	20			1	20		
55..	No. 2, Diamond shaft colliery,	3	40	34	80	"	Sept. 23,	.....do.....	2	90								
	....do.....do....	3	40	34	80	"	21,	.....do.....	2	90	1	100	1	40				
	....do.....do....	4	40	34	80	"	19,	.....do.....			1	30	4	212				
	....do.....breaker,	4	26	30	75	"	Dec. 7,	.....do.....							1	65		
56..	....do.....slope colliery,	4	36	34	75	"	Sept. 16,	.....do.....			2	100	1	25				
	....do.....do....	4	36	34	75	"	16,	.....do.....	1	80			1	25				
	....do.....air shaft,	3	30	34	75	"	16,	.....do.....										
	....do.....do....	3	30	34	75	"	16,	.....do.....							1	26	1	93
	....do.....do....	3	30	34	75	"	Oct. 1,	.....do.....										
	....do.....do....	3	30	34	75	"	Nov. 28,	.....do.....										
	....do.....do....	3	30	34	75	"	28,	.....do.....										
57..	Tripp slope.....	4	30	30	85	"	Sept. 16,	.....do.....	2	60	2	46	1	50			1	49
58..	Brisbin shaft.....colliery,	3	30	34	80	"	Nov. 10,	.....do.....	2	120			2	14				
	....do.....do....	3	30	34	80	"	16,	.....do.....			1	20			1	80	1	60

59..	Cayuga shaft.....do....	3	30	34	75	"	July	18,	.....do.....	2	120	2	300	.....	.....	.....	.....	1	60
	....do.....do....	3	30	34	75	"	Aug.	6,	.....do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do....	3	30	34	75	"	July	16,	.....do.....	.....	.....	.....	.....	1	20	.....	.....	.....	.....
	....do.....do....	3	30	34	75	"	Aug.	3,	.....do.....	.....	.....	.....	.....	.....	.....	1	60	.....	.....
60..	Von Storch slope.....	3	36	34	80	"	Dec.	26,	.....do.....	2	123	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do.....	3	36	34	80	"		26,	.....do.....	.....	.....	1	105	.....	.....	.....	.....	1	49
	....do.....do.....	3	36	34	80	"		26,	.....do.....	.....	.....	.....	.....	1	25	.....	.....	.....	.....
	....do.....do.....	3	36	34	80	"		26,	.....do.....	1	25	1	34	.....	.....	1	61	.....	.....
	Von Storch shaft.....	4	36	34	80	"		26,	.....do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do.....	4	36	34	80	"		26,	.....do.....	2	72	.....	.....	.....	.....	.....	.....	.....	.....
61..	Leggitt's Creek shaft.....	3	30	34	80	"		13,	.....do.....	2	124	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do.....	3	30	34	80	"		13,	.....do.....	.....	.....	6	155	.....	.....	1	77	.....	.....
	....do.....do.....	3	30	34	80	"		13,	.....do.....	.....	.....	1	105	.....	.....	.....	.....	.....	.....
	....do.....do.....	3	30	34	80	"		13,	.....do.....	1	47	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do.....	3	30	34	80	"		13,	.....do.....	2	40	.....	.....	.....	.....	.....	.....	1	49
62..	Marvin shaft.....	3	36	34	60	"		28,	.....do.....	3	60	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....	3	36	34	60	"		28,	.....do.....	.....	.....	.....	.....	.....	.....	.....	.....	1	75
	....do.....	3	36	34	60	"		28,	.....do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63..	Rolling Mill.....colliery,	4	40	34	80	"	Nov.	1,	.....do.....	2	80	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do....	3	30	36	80	"		1,	.....do.....	.....	.....	.....	.....	1	40	.....	.....	.....	.....
64..	Pine Brook.....do....	6	30	36	80	"		1,	.....do.....	2	60	.....	.....	1	40	.....	.....	.....	.....
	....do.....do....	3	24	36	80	"		1,	.....do.....	.....	.....	1	75	.....	.....	1	60	.....	.....
65..	Fair Lawn.....do....	2	36	34	65	"	Dec.	15,	.....do.....	2	30	.....	.....	.....	.....	1	35	.....	.....
66..	Green Ridge.....do....	6	40	36	65	"		21,	.....do.....	1	80	1	50	1	25	1	25	.....	.....
67..	No. 2 shaft, Dunmore.....	3	36	30	60	"		12,	.....do.....	1	40	.....	.....	2	40	.....	.....	.....	.....
68..	Roaring Brook .....colliery,	3	25	30	75	"	Aug.	5,	.....do.....	2	70	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do....	4	36	36	75	"		22,	.....do.....	.....	.....	1	60	.....	.....	1	35	.....	.....
	....do.....do....	1	14	40	75	"		22,	.....do.....	2	40	.....	.....	.....	.....	1	10	.....	.....
	....do.....do	1	12	40	75	"		22,	.....do.....	1	35	.....	.....	.....	.....	.....	.....	.....	.....
69..	Gipsey Grove.....do....	4	36	30	60	"	Jan.	21,	.....do.....	1	30	.....	.....	.....	.....	1	30	.....	.....
70..	Elk Hill.....do....	2	50	34	50	"	Dec.	20,	.....do.....	.....	.....	.....	.....	.....	.....	1	40	.....	.....
71..	Dip mines, Olyphant.....	3	36	34	80	"		28,	.....do.....	1	36	.....	.....	.....	.....	1	36	.....	.....
	Eddy Creek.....colliery,	3	36	34	80	"		28,	.....do.....	2	118	.....	.....	.....	.....	.....	.....	.....	.....
72..	....do.....do....	3	36	34	80	"		28,	.....do.....	.....	.....	1	77	.....	.....	.....	.....	.....	.....
73..	No. 1 colliery.	4	36	34	60	"		20,	.....do.....	1	43	.....	.....	.....	.....	1	36	.....	.....
74..	No. 3 colliery	4	36	34	60	"	Abandoned		.....do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
75..	Grassy Island.....colliery,	3	36	34	80	"	Dec.	28,	.....do.....	2	72	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do....	3	36	34	80	"		28,	.....do.....	.....	.....	1	77	.....	.....	.....	.....	.....	.....
	....do.....do....	3	36	34	80	"		28,	.....do.....	.....	.....	.....	.....	1	98	.....	.....	.....	.....
	....do.....breaker,	3	40	34	80	"		20,	.....do.....	.....	.....	.....	.....	.....	.....	1	97	.....	.....
76..	Jones, Simpson & Co.....	3	40	34	60	"		25,	.....do.....	3	109	.....	.....	.....	.....	1	25	.....	.....
77..	White Oak.....colliery,	3	36	34	70	"	Oct.	9,	.....do.....	1	54	.....	.....	.....	.....	.....	.....	.....	.....
	....do.....do....	3	36	34	70	"		13,	.....do.....	.....	.....	2	38	.....	.....	1	62	.....	.....

TABLE No 4—Continued.

Number of coal mine or colliery	Name of colliery.	No. of boilers	Dimens's. Length in feet,	Dimens's. Diam'r inches,	Pressure	Steam gauge or safety valve	Date of boiler examination, 1874	Present condition	No. hoisting engines,	How many h. power,	No. pumping eng'es,	How many h. power,	No. engines in mines,	How many h. power,	No. breaker engines,	How many h. power,	No. fan engines	How many h. power,
78..	No. 1 shaft, Jermyns'	3	36	34	70	Both.	Oct. 24,	Good & safe.	....	.....	....	.....	1	25	....	.....	....	.....
	....do.....do	3	36	34	70	"	Oct. 24,	.....do.....	....	.....	1	60	....	.....	....	.....	....	.....
79..	Jermyns' slope..	4	30	34	70	"	Nov. 8,	.....do.....	2	85	....	.....	....	.....	1	25	....	.....
	No. 1 shaft breaker	2	36	34	70	"	Nov. 8,	.....do.....	....	.....	....	.....	....	.....	1	25	....	.....
80..	Erie colliery	3	36	34	70	"	Jan. 5,'75,	.....do.....	2	70	....	.....	....	.....	....	.....	....	.....
	.....do	3	36	34	70	"	Jan. 5,	.....do.....	....	.....	1	60	....	.....	....	.....	....	.....
	.....do	3	36	34	70	"	Jan. 5,	.....do.....	....	.....	....	.....	....	.....	1	25	....	.....
81..	Powderly slope..	3	36	34	70	"	Oct. 24,'74,	.....do.....	2	118	....	.....	2	35	....	.....	....	.....
	....do.....do	3	36	34	70	"	Oct. 24,	.....do.....	....	.....	2	96	....	.....	....	.....	1	25
82..	No. 1 pumping shaft	2	36	34	70	"	Oct. 21,	.....do.....	....	.....	1	62	....	.....	....	.....	....	.....
83..	No. 3 shaft, Carbondale	3	36	34	70	"	Oct. 2,	.....do.....	1	77	....	.....	....	.....	....	.....	....	.....
	....do.....do	3	36	34	70	"	Oct. 13,	.....do.....	....	.....	....	.....	....	.....	....	.....	....	.....
84..	Coal Brook tunnel breaker	4	30	34	70	"	Oct. 4,	.....do.....	1	56	....	.....	....	.....	1	73	....	.....
85..	Racketts' Brook breaker	5	50	34	60	"	Oct. 5,	.....do.....	....	.....	....	.....	....	.....	1	77	....	.....
86..	New breaker, Dunmore	3	36	30	60	"	July 11,	.....do.....	....	.....	....	.....	....	.....	1	25	....	.....
87..	Screens at Dunmore	3	36	30	60	"	July 11,	.....do.....	....	.....	....	.....	....	.....	1	50	....	.....
88..	Eagle shaft colliery	3	34	32	60	"	Idle	.....do.....	1	80	....	.....	1	40	....	.....	....	.....
89..	Chestnut Hill..do	1	12	30	60	"	Oct. 15,	.....do.....	....	.....	....	.....	....	.....	1	30	....	.....
90..	No. 1 shaft, Pittston	5	36	30	70	"	.....	.....do.....	2	40	....	.....	....	.....	....	.....	....	.....
91..	Shaft for No. 6 slope	....	.....	.....	.....	.....	.....	.....	1	25	....	.....	....	.....	....	.....	....	.....
92..	Horan's coal mine	1	30	30	50	Both.	.....	Good & safe.	....	.....	....	.....	....	.....	1	20	....	.....
93..	New shaft at No. 10	....	.....	.....	.....	.....	.....	.....	2	40	....	.....	....	.....	....	.....	....	.....
	Total								145	6,498	71	3,755	60	1,823	72	3,080	20	954

TABLE No. 5.—*A list of Local Coal Sale Mines.*

No. of mines	Names of Mines.	Where located.	By Whom Operated.	Aver. thickness of coal in feet	Name of the vein of coal worked.	Number of tons of coal mined	Shafts	Slopes	Tunnels	Breakers	Schutes, &c.	No. of men inside	No. of men outside
1	Two local coal sale mines	Pittston township,	Maryl'd Nat. Anth. C. Co.,	10	Pittston, or 14 foot,	700	....	1	1	....	1	2	1
2	A local coal sale mine	Ransom township,	.....	.....	.....	450	....	....	1	....	1	1	1
3	....do	City of Scranton	Gardner & Campbell	4½	Rolling Mill	480	....	....	1	....	1	1	1
4	....do	....do	Tripp & Co	7	Diamond	4,035	....	1	....	1	....	4	3
5	....do	....do	Hoy & Co	4½	Rolling Mill	.....	....	....	1	....	1	....	....
6	....do	....do	Joseph Church	5½	Church	.....	....	....	2	....	1	....	....
7	....do	....do	Michael Rock	7	Clark	825	....	1	....	....	1	....	....
8	....do	....do	Griffin & Leach	7	Clark	3,450	....	....	1	....	1	5	4
9	....do	....do	Hancock & Dean	5	Lower	3,237	....	....	1	....	1	6	3
10	....do	....do	Carter & Moore	5	Dunmore	2,383	....	....	1	....	1	3	3
11	....do	....do	Bor. of Dunmore	4	....do	1,056	....	....	1	....	1	2	1
12	....do	....do	James Young	5½	....do	300	....	....	1	....	1	2	1
13	....do	....do	Anthony Maloney	5½	No. 2	2,800	....	....	2	....	1	5	4
14	....do	....do	Martin Cuppen	5½	No. 2	1,200	....	....	1	....	1	4	1
15	....do	....do	Luther Lyons	5½	No. 2	650	....	....	1	....	1	2	1
16	....do	....do	Henry Bowen	5½	No. 2	1,100	....	....	1	....	1	4	1
17	....do	Gibsonburg bor	Thomas M'Loughlin	6	Carbondale	800	1	....	....	....	1	3	1
18	....do	....do	Peter Dockerty	7 & 5	Top and Bottom	1,123	....	....	1	....	1	4	3
19	....do	....do	M'Garrah & M'Myne	5	Bottom	1,117	....	....	1	....	1	4	3
20	....do	....do	Frogtown, Fell tp.,	5	....do	350	....	....	1	....	1	2	1
21	....do	....do	Frost Hol., do	5	....do	.....	....	....	1	....	1	....	....
22	....do	....do	City of Carbondale	5	Nealon & Gilmartin	1,040	....	....	1	....	1	2	4
23	....do	....do	....do ....do	5	....do	3,000	....	....	1	....	1	5	4
24	....do	....do	Fell township	5	Williams & Co	400	....	....	1	....	1	3	2
	Total					30,496	1	3	23	1	23	64	43

TABLE No. 5—*Continued.*

Mines...	Name of Mines.	Where Located.	By Whom Operated.
1..	Eagle Shaft	Jenkin's twp.	Hon. Thomas Waddell.
2..	No. 3 Slope	..do.....do.	Pennsylvania Coal Co.
3..	No. 1 Mines	Pittston borough..	....do.....do.
4..	No. 2 Shaft	..do.....do.	....do.....do.
5..	No. 3 Shaft	..do.....do.	....do.....do.
6..	No. 5 Slope or Grand Tunnel	Pittston township,	....do.....do.
7..	Maryland National Anthracite	..do.....do.	....do.....do.
8..	No. 1 Shaft, Carbon Hill	Old Forge	Glenwood .....do.
9..	Stafford Brook colliery	City of Scranton..	Sus. & Wy. Val. R. R. Co.
10..	2 tunnels at National Anth. col	..do.....do.	....do.....do.
11..	1 tunnel in Meadow Brook col	..do.....do.	William Connell & Co.
12..	No. 1 Shaft	Bor. of Dunmore..	Pennsylvania Coal Co.
13..	1 tunnel at Roaring Brook col	..do.....do	Roaring Brook Coal Co.
14..	Rockwell's mines	City of Scranton..	A. B. Rockwell.
15..	Clark's mines	..do.....do.	
16..	Part of Elk Hill colliery	Dixon City	Elk Hill Coal Co.
17..	Top vein of No. 1 colliery	Blakley township,	Del. and Hud. Canal Co.
18..	No. 3 colliery	..do.....do.	....do.....do.
19..	Top vein of Grassy Island col	..do.....do.	....do.....do.
20..	No. 4 and 5 tunnels	..do.....do.	Eaton & Co.
21..	No. 1 and 2 tunnels	..do.....do.	Del and Hud. Canal Co.
22..	No. 2 mines	City of Carbond'le,	....do.....do.

TABLE No. 6.

A list of mines and collieries in the Eastern district of Luzerne and Carbon counties, which have maps and tracings filed in the Inspector's office, for the year 1874.

No. of colliery or mine.....	NAME OF COLLIERY OR MINE.	Name of vein worked.	DESCRIPTION OF OPENING.		
			Shaft.....	Slope.....	Tunnel..
1....	No. 2, or Port Griffith colliery	Pittston, or 14 foot		Slope	
2....	Everhart colliery	Lower			Tunnel
3....	No. 6 shaft.....colliery	Pittston, or 14 foot	Shaft		
4....	No. 5 shaft.....do	....do.....do	...do		
5....	No. 11 shaft.....do	....do.....do	...do		
6....	No. 7 shaft.....do	....do.....do	...do		
7....	No. 4 shaft.....do	....do.....do	...do		
8....	No. 4 slope.....do	....do.....do	...do	Slope	
9....	Grand Tunnel.....do	....do.....do	...do	...do	Tunnel
10....	Tompkins.....do	Checkered	...do	...do	....do
10....	Tompkins.....do	....do	...do	...do	....do
11....	Maryland National Anthracite colliery	Two Lower			Two tunnels
12....	No. 9 shaft.....colliery	Pittston, or 14 foot	Shaft		
13....	No. 10 shaft.....do	....do.....do	...do		
13....	No. 10 shaft.....do	Checkered	...do		
14....	No. 8 shaft.....do	Pittston, or 14 foot	...do		
15....	No. 6 slope.....do	Checkered		Slope	
16....	Seneca.....do	....do		...do	
16....	Seneca.....do	Lower		...do	
17....	Ravine shaft	Pittston, or 14 foot	Shaft		
17....	Ravine shaft	Checkered	...do		
18....	Beaver mines	....do			Tunnel
19....	Rock Hill tunnel	....do			....do
20....	Twin shaft.....colliery	....do	Two shafts		
20....	Twin shaft.....do	Pittston, or 14 foot	...do		
21....	Phœnix.....do	Checkered	Shaft		
21....	Phœnix.....do	Lower	...do		
22....	Columbia.....do	Pittston			Tunnel

TABLE No. 6—Continued.

No. of colliery or mine.....	Name of colliery or mine.	Name of vein worked.	Description of opening.		
			Shaft.....	Slope.....	Tunnel..
23....	Butler.....colliery.....	Pittston.....	Shaft.....	.....	.....
23....	Butler.....do.....	Lower	...do	.....	.....
24....	Ontario.....do.....	Pittston.....	.....	Slope.....	Two tunnels..
25....	Hillside.....do.....	Lower	Shaft.....	...do	.....
26....	Hillside.....do.....	Brown.....	.....	.....	Tunnel.....
26....	Hiedleburg.....do.....	Lower	.....	.....	...do .....
27....	Brown's.....do.....	Brown's	.....	.....	...do .....
28....	Dawson.....do.....	Starke.....	Shaft.....	.....	.....
29....	Starke.....do.....	....do	...do	.....	Tunnel.....
30....	Spring Brook.....do.....	...do	.....	Slope.....	Two tunnels..
31....	Oak Hill.....do.....	Old vein.....	.....	.....	Three tunnels.
32....	Carbon Hill.....do.....	Carbon Hill.....	Two shafts....	.....	.....
32....	Carbon Hill.....do.....	....do	.....	Slope.....	Tunnel.....
33....	Sibley .....do.....	....do	Shaft.....	...do.....	.....
34....	Pyne.....do.....	.....	...do	...do.....	.....
35....	Taylor..... .....do.....	Clark.....	...do	.....	.....
36....	Taylor.....do.....	Rock.....	.....	.....	Tunnel.....
37....	Corey.....do.....	No. 5 vein	.....	.....	Two tunnels..
38....	Greenwood .....do.....	Old vein.....	.....	.....	No. 6 tunnel..
39....	Stafford Brook.....do.....	No. 2.....	Shaft.....	.....	Two tunnels..
40....	National Anthracite colliery	Nos. 2 and 3	.....	.....	Three tunnels.
41....	Meadow Brook colliery.....	Nos. 5 and 3	.....	.....	...do .....
41....	Meadow Brook....do.....	Nos. 5 and 3	Shaft.....	Slope.....	.....
42....	Stafford Brook, No. 2 colliery.....	Rolling Mill.....	.....	...do	Tunnel.....
43....	Scranton Coal Company's mine.....	14 foot "G".....	.....	...do	...do .....
44....	Dodge.....colliery.....	G, or Big....	Shaft.....	.....	.....
44....	Dodge.....do.....	Rock	...do	.....	.....
45....	Bellevue.....do.....	G, or Big.....	...do	.....	.....
46....	Bellevue.....do., slope.....	Rock	.....	Slope.....	.....
46....	Bellevue slope.....do.....	Diamond	.....	...do	.....
47....	Oxford shaft.....do.....	....do	Shaft.....	.....	.....
47....	Oxford shaft.....do.....	Rock.....	...do	.....	.....

48....	Central shaft .....do.....	G, or Big.....	...do	.....	.....
49....	Sloan shaft .....do.....	....do	...do	Slope	.....
50....	Archbald shaft ....do.....	....do	...do	...do	.....
50....	Archbald shaft ....do.....	Rock	...do	...do	.....
51....	Continental shaft..do.....	G, or Big.....	...do	.....	.....
51....	Continental shaft..do.....	Clark.....	...do	.....	.....
52....	Hampton shaft ....do.....	Diamond.....	...do	.....	.....
53....	Hyde Park shaft...do.....	Rock	...do	.....	.....
53....	Hyde Park shaft...do.....	G, or Big	...do	.....	.....
54....	Capouse shaft.....do.....	Rock	Two shafts....	.....	.....
54....	Capouse shaft.....do.....	Diamond.....	...do	.....	.....
55....	Mt. Pleasant.....do.....	....do	.....	Slope	.....
55....	Mt. Pleasant.....do.....	Rock	.....	...do	.....
56....	Fellows' coal mine.....	Diamond.....	.....	.....	Tunnel.....
57....	No. 2, Diamond mine.....	....do	Shaft.....	.....	.....
57....	No. 2, Diamond mine.....	Rock	...do	.....	.....
57....	No. 2, Diamond mine.....	G, or Big	...do	.....	.....
58....	No. 2, Diamond slope colliery.....	....do	.....	Slope	.....
59....	Tripp slope.....colliery.....	Diamond	.....	...do	.....
60....	Brisbin shaft .....do.....	G, or Big.....	Shaft.....	.....	.....
61....	Cayuga shaft.....do.....	....do	...do	.....	.....
62....	Von Storch.....do.....	Diamond	...do	Slope	.....
62....	Von Storch.....do.....	G, or Big	...do	...do	.....
62....	Von Storch.....do.....	Clark.....	...do	.....	.....
63....	Leggitt's Creek shaft colliery.....	Diamond	Two shafts....	.....	.....
63....	Leggitt's Creek shaft colliery.....	G, or Big	....do	.....	.....
64....	Marvin shaft....colliery.....	.....	Shaft.....	.....	.....
65....	Rolling Mill.....do.....	Rolling Mill.....	.....	Slope.....	Tunnel.....
66....	Pine Brook.....do.....	Clark.....	Shaft.....	.....	.....
67....	Fairlawn .....do.....	....do	.....	Slope.....	.....
68....	Green Ridge.....do.....	....do	.....	...do	.....
69....	No. 2 shaft, Dunmore.....	Lower	Shaft.....	...do	.....
70....	Roaring Brook..colliery.....	Upper	Two shafts....	.....	.....
70....	Roaring Brook.....do.....	Middle	...do	.....	.....
70....	Roaring Brook.....do.....	Lower	...do	.....	.....
71....	Gipsey Grove.....do.....	....do	Shaft.....	.....	.....
71....	Gipsey Grove.....do.....	....do	.....	.....	Two tunnels..
71....	Gipsey Grove.....do.....	Middle	.....	.....	...do .....
72....	Elk Hill.....do.....	Upper	.....	.....	Tunnel.....
73....	Dip Mines.....do.....	No. 2.....	.....	.....	...do .....
74....	Eddy Creek .....do.....	....do	Shaft.....	.....	.....
74....	Eddy Creek .....do.....	Grassy Island.....	...do	.....	.....
75....	No. 1.....do.....	No. 2.....	.....	Slope.....	Tunnel.....

TABLE No. 6—CONTINUED.

No. of colliery or mine.....	NAME OF COLLIERY OR MINE.	Name of vein worked.	DESCRIPTION OF OPENING.		
			Shaft....	Slope....	Tunnel..
75....	No. 1.....colliery.....	No. 2.....	.....	Slope.....	Tunnel.....
76....	No. 3.....do.....	No. 2.....	.....	...do	...do .....
77....	Grassy Island shaft	Grassy Island.....	Shaft.....	.....	.....
78....	Jones, Simpson & Co.'s mines, Archbald.....	Archbald.....	...do	.....	Three tunnels.
79....	White Oak colliery.....	....do	.....	Slope.....	Two tunnels..
80....	No. 1 shaft, Jermyn.....	....do	Shaft.....	.....	Tunnel.....
81....	Jermyn's slope, Jermyn.....	....do	.....	Slope.....	.....
82....	Erie shaft.....colliery.....	Powderly.....	Shaft.....	.....	.....
82....	Erie shaft.....do.....	....do	.....	.....	Tunnel.....
83....	Powderly slope	....do	.....	Slope.....	.....
84....	Powderly Rock tunnels.....	....do	.....	.....	Two tunnels..
85....	No. 1 slope, Carbondale.....	Bottom.....	.....	Slope.....	.....
86....	White Bridge tunnel.....	Bottom and Top.....	.....	.....	Tunnel.....
87....	No. 3 shaft	....do	Shaft.....	.....	.....
88....	Coal Brook.....tunnel.....	....do	.....	.....	Tunnel.....
89....	Breaker .....do.....	....do	.....	.....	...do .....
90....	Lackawanna.....do.....	Bottom.....	.....	.....	...do .....
91....	Valley.....do.....	....do	.....	.....	...do ... .
92....	Mill Ridge.....do	Top.....	.....	.....	...do .....
93....	Jefferson .....do.....	Top.....	.....	.....	...do .....
94....	Midland.....do.....	Bottom.....	.....	.....	...do ....
95....	Chestnut Hill .....do.....	....do	.....	.....	...do .....
96....	Forest .....do.....	Top.....	.....	.....	...do .....
97....	Eagle shaft.....	Pittston.....	Shaft.....	.....	.....

A LIST OF MAPS OF LOCAL COAL SALE MINES.

1. Local coal sale mine, John Gibson & Co., Rolling Mill, tunnel.
2. ....do.....do.....Tripp & Co., Diamond, slope.
3. ....do.....do.....Hoy & Co., Rolling Mill, tunnel.
4. ....do.....do.....Joseph Church, Church, two tunnels.
5. ....do.....do.....Michael Rocks, Clark, tunnel.
6. ....do.....do.....Griffin & Leaches, Clark, tunnel.
7. ....do.....do.....Hancock & Deans, Lower, tunnel.
8. ....do.....do.....A. Maloney's, Dunmore, tunnel.
9. ....do.....do.....James Young, Dunmore, tunnel.
10. ....do.....do.....Martin Cupper's, No. 2, tunnel.

PLAN

OF

SAFETY AND SELF DUMP CARRIAGES

IN USE AT THE

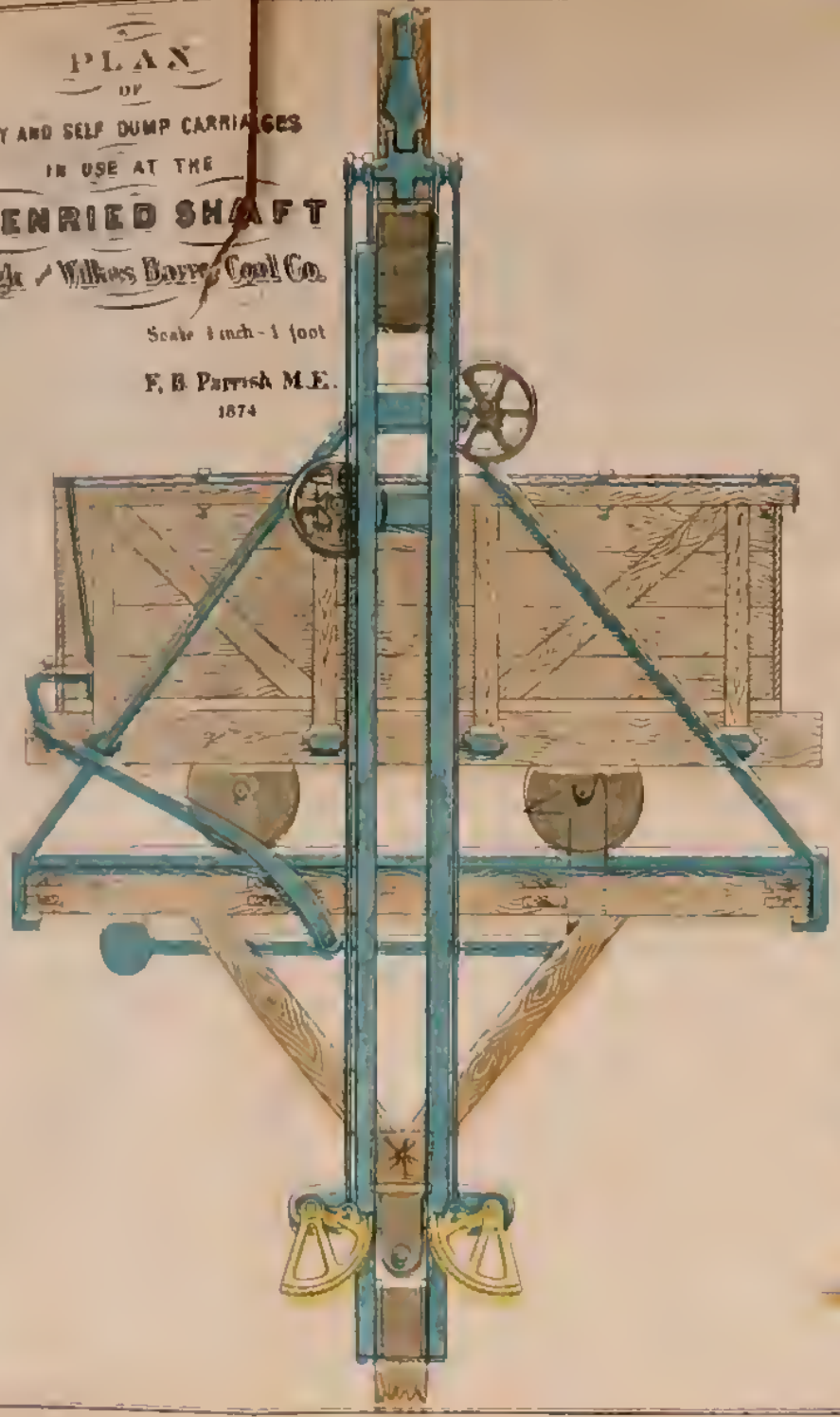
AUDENRIED SHAFT

Lehigh & Wilkes Barre Coal Co.

Scale 1 inch - 1 foot

F. B. Parrish M.E.

1874



REPORT

OF THE INSPECTOR OF COAL MINES FOR THE MIDDLE DISTRICT OF LUZERNE AND CARBON COUNTIES, FOR THE YEAR 1874.

OFFICE OF INSPECTOR OF COAL MINES,
Wilkesbarre, Pa., March 1, 1875.

His Excellency, JNO. F. HARTRANFT,

Governor of the Commonwealth of Pennsylvania:

SIR:—In compliance with the requirements of an act, entitled "An Act providing for the health and safety of persons employed in coal mines," approved 3d day of March, 1870, I have the honor to submit herewith my annual (tabulated) report of accidents, resulting in death or serious personal injuries. Also the number of widows and orphans caused by said accidents, for the year 1874.

The report will also contain, among others, the following items, each bearing more or less on the matter of safety of persons employed in and around the coal mines, to wit:

A brief history of the three great fires in the mines of this district during the year, together with a plan showing the territory occupied, enclosed, &c., in connection with the Empire fire.

Also a plan of hoisting carriage, with its safety catches attached, adopted for the *Audenried Shaft, Lehigh and Wilkesbarre Coal company.*

Tables showing the quantity of coal mined, and the number of lives lost during the year.

Also comparative tables showing the ratios of coals produced, and persons employed to each life lost, in England, Nova Scotia and this country, during the same period.

Articles on accidents in coal mines, inspectors' reports, &c., &c.

I have the honor to be,
Your obedient servant,
T. M. WILLIAMS,
Inspector of Mines.

IMPROVEMENTS.

Among colliery improvements, shaft sinking is one of the most costly and important items. The following designated shafts have been completed since my last report, to wit:

SHAFTS COMPLETED DURING 1874.

Riverside Coal Company's Wyoming Shaft.—This shaft was commenced, as mentioned in my last report, during the year 1872; it was sunk 35 feet and work suspended.

The sinking was again resumed December 15, 1873, and completed April, 1874.

Mr. William M'Culloch, the contractor, having sunk the Wyoming shaft 216 feet in four months, also received the contract and sunk the second opening shaft to the same depth. The latter is a circular shaft, used for an upcast air-way, and also has a wire rope and bucket, with the necessary hoisting machinery to be used in case of need, as a means of escape, or second opening.

A short distance west of the air-shaft head, is erected a pair of ventilating fans, each 15 feet in diameter. These fans are similarly constructed to those at the Enterprise colliery, belonging to the same company, and described in my last report.

Lehigh and Wilkesbarre Coal Company's Audenried Shaft.—This shaft has been completed, so far as sinking, timbering and lining is concerned, and is now ready to be operated. The tunnels now being driven, and the machinery are not quite finished.

Delaware and Hudson Canal Company's No. 4 Shaft, Plymouth.—This shaft was being sunk deeper from the Bennett or lower bed of the Baltimore seam, down to the Red Ash or Buck Mountain seam, at the time of my last report, and has since been completed. Gangways are being opened out, preparatory to driving at the proper distance, to connect with a new shaft now being sunk, about 200 feet north of the former, to secure a lawful second opening.

Shafts not yet Completed.

Lehigh and Wilkesbarre Coal Company's No. 14 Shaft.—This shaft is located adjacent to the Gaylord slope, Plymouth, Pa. It is progressing, having been sunk through the Cooper or upper bed of the Baltimore seam. It is intended to win the coals of the Red Ash seam in this locality.

South Wilkesbarre new Shaft, by the Lehigh and Wilkesbarre Coal Company.—This shaft has only been worked a part of the time since my last report, but has reached a depth of 418 feet. It is now thought that it will take 400 feet additional sinking to cut the Baltimore seam.

Hollenback Shaft, also owned by the Lehigh and Wilkesbarre Coal company. This shaft has penetrated the Baltimore seam at a depth of 500 feet from the surface, and was found in good condition. Although the sinking has been finished, the shaft is not quite completed for hoisting, its timbering, lining, &c., not having been finished yet. Neither has it the necessary second opening, but a shaft 12′ by 20′ is being sunk at a distance of 1,300 feet south-east of it, to which a communication will be made for a second opening; it will also be used as an upcast air-shaft.

The necessary fan or fans will be erected to ventilate the Hollenback and Diamond collieries; besides that, a hoist-way will be in one end of this shaft, through which the workmen will be let up and down for both the mines above mentioned. Also materials, such as timber, machinery, &c., may be handled in the same manner if need be.

Susquehanna Coal Company's Shafts, Nos. 1 and 2.—No. 1 shaft has already reached a depth of 540 feet, having passed through the upper and lower beds of the Baltimore seam. The lower of the two aforementioned beds is called, in that locality, the "forge" vein. The shaft is now being timbered, preparatory to its continuation at some future time, how soon I know not, to the lower or Red Ash seam.

The sinking has been done, for some time, by day's work, under the immediate direction and supervision of the company's mining foreman, Mr. Geo. T. Morgan.

No. 2 shaft has reached a depth of 445 feet. Having been commenced about 540 feet lower in the measures than No. 1 shaft, it has cut through

the Ross seam, and is expected that the Red Ash seam will be reached within the depth of 525 feet, or 80 feet from present depth.

Luzerne Coal and Iron Company's Oakwood shaft.—This shaft, although sunk into the top bed of the Baltimore seam, has not been completed. The timbering and lining not having been finished, but is being done at present. In all probability a connection will be made between the Oakwood and Prospect shafts about the same time that the timbering will be completed. Total depth of this shaft to the top bed of Baltimore seam is —— feet.

Delaware and Hudson Canal Company's shaft, No 3, second opening.—This shaft is located near Plymouth, and although having penetrated the seam for some time past, has not been completed, neither has the connection been effected between it and the former. It is expected that a communication will be made during the early part of 1875.

Baltimore No. 3 Shaft, (D. and H. C. Co.)—This shaft is located near the main road between the city of Wilkesbarre and Parson's station. It penetrated the Baltimore seam at the depth of 360 feet, having been started during 1873, and cut into the coal in December, 1874.

This shaft is intended for an air-shaft and a pump-way, as it connects with the No. 3 slope, and was intended as a suitable place to erect the proper machinery to ventilate and drain the working of the same.

Second Openings.

There are but four shafts in this district at work—deficient in this respect, namely: Prospect shaft, L. C. and I. Co.; Nos. 4 and 3 shafts of the D. and H. C. Co.'s, near Plymouth, and the Hollenback shaft of the L. and W. B. C. Co. As previously stated each one has its second opening under way.

A second opening has been had, between the new and old shafts in West Pittston.

Ventilating Fans.

The following fans have been erected during the year—besides two not included in this table, built to enable the combatting of the great subterraneous fire mentioned elsewhere in this report, to wit:

Location of Fan.	Diameter in feet..	Material in vanes,	Material in casing,	Pheriphery open or close.	Builder's address.
Mineral Spring colliery	18′	Wood,	Wood	Close	George W. Snyder, Pottsville, Pa.
Exeter shaft colliery [mouth,	20′	Iron...	Cast iron sections,	"	" "
D. and H. C. Co.'s shaft, No. 3, near Ply-	17′	Wood,	Wood	"	Dixon Manuf'g Co., Wilkesbarre, Pa.
East Boston colliery	15′	Iron...	Iron	Open and revolving disk..	Vulcan Iron Works, "
Nanticoke, No. 1, tunnel	24′	"	"	" "	"
Sugar Notch, No. 10, tunnel	15′	Wood,	Wood	Close	Company's shops.
Espy Tunnel colliery	15′	"	"	"	"
Hartford Red Ash tunnel	15′	"	"	"	"
Empire, No. 5, slope	15′	"	"	"	"
Wanamie, No. 1, slope	15′	"	"	"	"
Wyoming colliery, Plainsville	15′	"	"	"	"
	15′				

This being my fifth report, covering a period of four years and nearly six months, and considering that before the time arrives to make out another report, my present term of office will have expired, I would state that when I first took this office, the ventilation of this district was secured—such as it was—by the aid of 16 fans, varying in diameter from 8 feet up to 15 feet, and one as large as 20 feet. Besides the above there were a few tolerably good furnaces, many small grates, steam jets and exhausts and a few by nothing but natural ventilation.

At the present time we have 67 fans, 51 having been erected during my term of office, and averaging in size from 15 feet up to 20 feet, the exceptions being a few 12 feet and a few 21 and 24 feet fans.

FIRES IN ANTHRACITE COAL MINES.

During the year just ended we had three great fires in this district, to wit: At Empire colliery, Prospect Shaft colliery and Baltimore old mines.

It may be proper here to give a brief history of each of those fires, that other parties interested in mining may be made more fully acquainted with their various causes, which led to so much loss to employers in property, and danger to the lives and limbs of their employees. Also the different methods employed for the purpose of extinguishing the same, together with the success attained up to the time of making up of this report, December 31, 1874.

Empire Fire.

The fire was first discovered breaking out in the air stack, alongside the Kidder plane, about one o'clock on the morning of December 31st, 1873.

Subsequently it was learned that the fire had its origin in the return air-way, somewhere near the steam boilers located inside the mine, near the head of No. 5 slope. The coals from No. 5 slope were being hoisted to the shaft gangway, at a point nearly four thousand feet from the foot of hoisting shaft. There being some four or five hundred mine cars per day to be taken from said No. 5 slope, hence it was that steam boilers were located at that place.

The mine being of considerable extent, required large quantities of pure air for ventilation, and no fan having been erected at this slope at the time, the heat from the steam boilers was made use of to assist ventilation, by conveying the return air from No. 5 slope into the large air-way made from those steam boilers, before mentioned, up to the surface, through the old Kidder slope, to the stack where the fire was first discovered breaking out.

The said air-way was about 1,000 feet in length, with sectional area of about 60 feet. The quantity of air passing through said air-way must have been over 60,000 cubic feet per minute, as there was about 50,000 returning into it from No. 5 slope, and an escape also left into the boiler room to keep the place cool, and to furnish the necessary amount of air for the fires under the six steam boilers. The total vertical height, from the location of steam boilers to the top of air stack, at the surface, was about 420 feet; this height, together with heat generated by the steam boiler fires, the heat given off by men and animals, and the increased temperature attributable to the depth of the mine, caused the draught and circulation of the aforementioned quantity of air. In view of the quantity of air escaping through said air-way, there must have been a very high velocity—1,000 feet per minute, or nearly 11.5 miles per hour, thus requiring but one minute for

air to pass from the steam boilers to the top of air shaft on the surface, and that velocity, no doubt, increasing rapidly from the increase in heat caused by the additional fire now kindled in the upcast air-way. So it can be seen at a glance, that it did not require a long time for a fire that originated even at the back end of the steam boilers to make its way to the surface, along the upcast air-way, which was lined with timber almost to the foot of the wooden stack, on top of the same on surface.

The six steam boilers before mentioned were put in place at two different periods of time, and when the last two were placed, the officers in charge made extraordinary efforts against the possibility of a fire. The mine boss, Lewis S. Jones, stated that the air-way was being examined in whole or in part each day, and that nothing unusual had been detected by those whose duty it was to examine the same on their last visit, the day previous to the fire breaking out.

How the fire began in the aforementioned air-way is not certain. Of one thing we are certain, and that is this: that even in stone and brick chimneys, it often occurs that the soot in the same ignites, and no doubt the burning of many dwelling houses could rightly be attributed to such a cause.

Then if such a thing takes place in stone and brick chimneys, why might not such have taken place in said air-way, as it is well known to all persons acquainted with such places, that the roof and sides of such passages are usually covered with a coating of accumulated soot, which is nothing but small particles of carbon, the result of imperfect combustion.

Again, this soot might have been ignited by the high temperature escaping from the fires under the steam boilers at times, if not from a spark carried immediately from the fire of wood or other combustible making much flame through the flue; this is not very probable although possible. Then it might have happened by the falling upon the mouth of the tube or flue of coal, slate and other rubbish, in sufficient quantites to decrease the outlet, thereby increasing the temperature at the time, in such rubbish of wood, bark, coal, slate, &c.

The immediate cause or origin of the fire may be attributed to either of the above suggestions. At all events, the fire must have originated very close to the flue at the back end of the boilers, as there was quite a fire there, when first visited, when the men reached there from outside.

From the very day, yes, the hour that it was known that the mine was on fire, until it was decided to hermetically seal the same, every available means were used to extinguish the fire according to the best judgment and opinions of the most experienced men under the Lehigh and Wilkesbarre Coal Company, and other companies as well.

It would be too tedious to give the details of this matter, also it would make this report entirely too lengthy to be of interest. But I would state amongst other things, that the great fire was combatted with that courage, skill and determination, peculiar to the hardy men of the mines. Each person having a certain duty allotted him, attended to the same most cheerfully, let the task be ever so hazardous. The men employed at these mines, as a body, are a very intelligent class of workmen, and courage combined with intelligence, in time of apparent danger, as in this case, are of much importance and above price.

The number of persons employed was increased from time to time, as circumstances required, until finally they numbered many hundreds. The large force of men employed was organized into squads, each squad having its leader or foreman, who received his instructions from officials in higher grades, and each party having its allotted territory.

The whole work was usually divided into three sections. The time of working was divided into six hour shifts, or in other words, four parties would occupy the time of twenty-four hours, in turns of six hours each, except in places of not more than ordinary exhaustion or danger, when the hours would be longer accordingly.

The extinguishing of the fire by forcing water upon it was doubted, until about the first of March, when a large portion of the roof on the east side caved in. This caving in had been looked for for same weeks previous to this time, and most persons acquainted with the fact, felt some little uneasiness regarding the consequence that might result from it, fearing that it might come with such a force that the wind from it would do serious damage to some of the wooden brattice, upon the condition of which the lives of scores of our men always depended.

When the roof and sides gave such signs and indications that the dreaded cave or fall was about to take place, the workmen were withdrawn from the mines; but before doing so, the fires from under the five portable steam boilers were all taken out, and all the steam pumps, consisting of six No. C Knowles' pumps, had to be stopped and left to their fate.

Work was again resumed within two days, notwithstanding that the fire had already destroyed hundreds of feet of wooden brattice, forming the man-ways, and had ran back over ground that had once been one mass of fire, and since conquered, and which was perfectly cool when left. I would remark here, that there was one side of the fire, that on the west, which had not been surrounded, although extraordinary efforts had been made to do so from the commencement, and there being no opposition to it on that side it must have spread rapidly in that direction from the time the fire first broke out, even when it was being slowly curbed in on all other sides.

Soon after the aforementioned cave came down, and the forcing of all hands back nearly to the place of beginning on three sides; the fire on the fourth side made its way into an old cave in the old No. 1 drift and Kidder workings, on the west side.

At this time, the temperature had got so high in the adjoining old workings, that it was thought tinder might be ignited by it, at any point where that high degree of heat might reach in the old mines, thereby spreading the fire where it could not be extinguished, unless by some other means. The officers of the company again held a consultation, and this time determined on another method, to supersede the old one, in trying to quench the fire. The new method was the sealing up of the mine, at the points most advantageous, so as to exclude the atmospheric air from the fire, and the injection of steam into the enclosed territory.

Mr. Lewis S. Jones, the mining boss, had been experimenting on the use of steam on the fire for a week or two previously, by letting it escape into the open fire—using it instead of water; its use in that manner was most beneficial, when left to escape upwards. The specific gravity of water being heavier than air it must fall; the reverse was the case with the steam, its tendency being upwards.

In course of time the enclosure around the whole area was completed. The materials used in the construction of the stoppings and walls inside the mines were lime mortar, cement, brick, stone and planks and boards. Everything was done that was thought of as an assistance, to exclude the atmospheric air so as to enable them to keep the injected steam within the enclosure together with the gases generated.

The surface leakages, although having numerous large cave holes, were also sealed up by the hauling of immense quantities of earth and clay, and

tamping the same hard into each hole and crevice in the broken surface and rocks.

A nine inch drill hole, bored with a diamond drill down into the mine nearly where the fire originated, was made use of to introduce steam from nine steam boilers, located on the surface near the hole, and letting it penetrate the fire at that point on the north side.

Also, steam was forced in from the Kidder or south side from nine boilers, and from nine more at No. 1 slope, west end of the enclosure. There was steam also forced in from 10 boilers on the eastern end during each night, the same being required during the day to hoist coals from No. 2 Hollenback slope.

About the first of May steam was let on or forced into the burning mine from three of the abovementioned points and on the fourth side shortly afwards.

During the day steam from 27 boilers and from ten more each night, was forced in, equal to 32 continuously, the pressure guage often indicating 45 or 50 pounds to the square inch.

The steam was kept on until the first of December, 1874.

About the middle of December the mine was entered, and upon examination the fire in the lower section was found to have been extinguished. In the upper or Kidder section the heat was so intense that the examination for the time had to be abandoned until the heat has decreased, although no fire had been seen. Consequently the entrance was again sealed up until sometime in the future.

Whether the fire is all extinguished or not is not quite settled; but let that be as it may its final extinguishment in that manner is only a question of time, as it has been fully demonstrated since that the lower section, where such strong fires were left when the mine was closed, has been completely examined and no fire discovered.

It is but fair to state that were it not for the misfortune of the great cave before mentioned, it is presumable that the fire would have been extinguished through the use of water alone, unless the fire had already penetrated the old cave on the west side in the old Kidder and other workings.

Many people wonder why it was that a fire in one thousand feet of an air-way should have caused such a calamity. I would here state that the air-way was the only opening from the steam boilers to the surface through that part of the mine. And very soon after the fire broke out the cribbing in the shaft upon which the air stack was located burning out it caved in, this immediately impeded the ventilation, causing the carbonic acid gas, manufactured from the burning wood and coal in the air-way to fall back to the lowest level or gangway, where the main traveling had to be done. Soon afterward the wooden doors in the stone stoppings were burned out, and a draught was formed by the heated air escaping to the surface through the old cave holes on the east side of Kidder old slope.

This, in part, relieved the lower passages of gas, but it was only to increase its force as the fire increased. In order to be able to combat the fire at all, it became necessary to increase the ventilation. From time to time, no less than three fans, 15 feet diameter each, had to be used for ventilation. It was well known and considered that to introduce more fresh air, was equivalent to increasing the force of the fire in a rapid rate; and again, to proceed with work without more pure air, was impossible.

So strong were these gases at times, that scores, yes, hundreds, from time to time were overcome by their effects; sometimes a whole squad of 15 or 18 men would be stricken down simultaneously.

Several narrow escapes were had from losing not only one, but large numbers of persons at one and the same time. On one sad occasion, March 16, one of the blades or vanes of the fan broke off, thereby causing a few minutes delay or stoppage of the fan, and before an alarm could be given to the men inside the mine, the deadly gases fell on either side of advanced man-ways, and kept back by the wooden brattice and the air pressure, fell back into what was before an open channel man-way, filling every space with this deadly poison, thereby cutting off the retreat of Michael Harte, who happened to be at that moment in the advance. His comrade at once gave the alarm, when many brave chargemen, miners and laborers rushed in to aid in rescuing their fellow miner; but the enemy held the field, and at one time no less than six of the volunteers were piled one across the other. Fortunately the fan was again in motion, and fresh air sent to their relief, else it is difficult to think how many more lives would have been lost at this time. The ventilation then improved, and the asphyxiated persons were taken care of—all survived except Harte; his body was secured, and although everything was done to restore him to consciousness, all proved of no avail. I would state that a physician, and a good supply of restoratives had been secured by the company's officials from the commencement of the fire, and a station fixed, and men selected to attend to the same. There was but one case that proved fatal, although dozens would be effected by those gases during a shift of six hours.

It is impossible to state or estimate what might have been the result in serious accidents and deaths resulting from the same, had it not been for the extraordinary constant care taken in each department by the general superintendant and his assistants, George H., and Frederick Parrish, in providing everything that could be gotten for the safety and comfort of their employees; also by the indefatigable exertions and care of the mining superintendent, John T. Griffith, together with the following staff of under bosses and chargemen: Lewis S. Jones; S. J. Tonkins, master machinist; A. Reese, Wm. Smyth, D. L. Richards, Reese Jones, Robert Looney, Jno. Clinton, Wm. Dickie, James B. Davis, David Jonathan, Jas. M'Dade, John Heycocke, Richard Roderick, John S. Jones, Morgan Jones, M. R. Morgan, D. W. Evans, Robert Rutledge, Ed. Lynop, Joseph Edwards, Benjamin Pryor, T. W. Miles, and others that I cannot at once recall to my mind.

The writer made it his business to examine carefully each and every place where there were persons employed, for the first two months about once in each twenty-four hours; at times entering places that under ordinary circumstances would be considered recklessness — yes, worse. Still, since men were required to work in these places, he felt it a duty on himself to examine the same, so that if any thing more could be done towards their safety, it should be made known to the officers, as each recommendation made was always complied with, either by the immediate orders or instructions of Messrs. Parrish or Griffith. And when we look back to the most fearful places in which men were at times required to work, and that some six hundred persons were employed in each twenty-four hours, in great danger—the most of them—I say it is surprising that so few accidents occurred, and certain it is, that too much credit cannot be bestowed upon the aforementioned officers, from the highest to the lowest, according to the part that each had in charge.

Concerning the hardships endured so patiently, and dangers braved so cheerfully, by the workmen, almost without exception, it is beyond my ability to do them justice in this article, but can unhesitatingly state, that in my own personal experience of underground life, covering a period of over thirty years, I never saw men face such daily dangers, knowingly, as

they did in this case; dangers that no human being can form any idea of, unless it be one that had been through the whole campaign; and which no pen can describe or picture to the uninitiated.

No doubt some people are ready to ask the question, why it was that the sealing up of the mine was not resorted to immediately after it was found that the fire had got such a start?

The answer to the same is hereby given by the writer from his own knowledge of matters connected with the same. The fire originated as before mentioned, near the head of No. 5 slope, where a large quantity of coal was hoisted daily, and it was thought that the fire could be extinguished without resorting to the abandonment of this slope; besides that, the matter of expense and the time necessary to do so, then appeared too enormously great to be thought of. Subsequently, however, when all hands became better acquainted with matters of expense, and saw that it would prove the cheapest in the long run, then it was that such an idea was entertained. To think of the amount of labor and material requisite to enclose the west end of the mine, at a point twenty-five hundred feet from the origin of the fire, up to the surface, a distance of 1,200 feet, fill up the many dozen cave holes along the surface line of four thousand feet, and the diameter of many of these caves being not less than one hundred feet; and again, wall up the stoppings necessary on the eastern end, from the Hollenback lower gangway to the No. 1 drift, a distance of over fifteen hundred feet, and along said drift westward many hundreds of feet. I say, that at that time, it would have been considered almost impossible, but after having battled the fiery monster so long and hard, officers and men had almost courage enough to do impossibilities.

The whole length of the line, or perimeter of the space enclosed containing the mammoth fire was eleven thousand feet, including the rib on the north or lower side where, happily for the officers, there were but few holes to be closed, the same being the pillar between the shaft level gangway and the workings in No. 5 slope.

The whole superficial area of the territory enclosed equals about four million eight hundred thousand square feet, (4,800,000.)

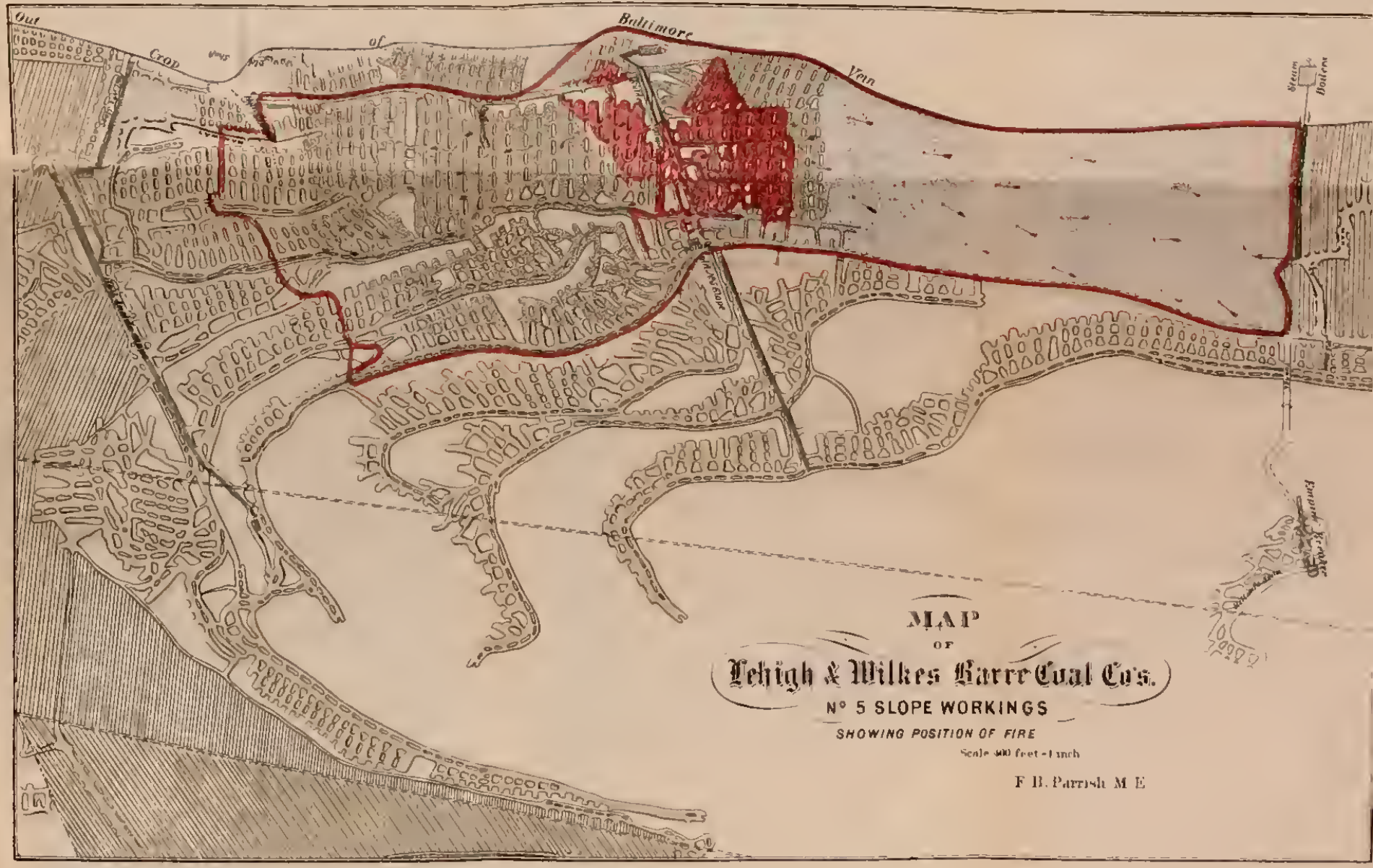
The seam averaging at least sixteen feet in height, it is fair to infer that about seven-sixteenths of the same may be calculated upon as the vacancy to be filled by steam and gases, making an aggregate of thirty-three million six hundred thousand cubic feet, (33,600,000.) This leaves nine feet, or nine-sixteenths of the seam, to make up for pillars, rubbish and caves in the enclosed territory.

The seam lying at an angle of 60 or 75 degrees in some parts, it would take a long time for the carbonic acid gas, generated by the burning fire, to fill up to the height of 420 feet vertical, to the top of the old workings at the outcrop; as it would undoubtedly fill from the lower level gangway upwards, and whatever amount of oxygen there was admitted by any means, it was at once consumed by the fire, adding the residuum to the reservoir already forming below of the carbonic acid gas.

This process must have continued so long as there was any fire in the seam above the aforementioned reservoir, filling up from below.

The same filling up fast or slow, as the amount manufactured by the natural process before mentioned, would be great or small, less the quantity escaping to the surface through leakage.

Any leakages found, and there were but few of them, always indicated a tendency to admit fresh air at the lower points, and a desire to escape outwards by the much expanded or lighter air, from inside the fire enclosure, at the higher points.


Out
Crop
of
Baltimore
Vein
Steam
Boilers
MAP
OF
Lehigh & Wilkes Barre Coal Co's.
N° 5 SLOPE WORKINGS
SHOWING POSITION OF FIRE
Scale 400 feet = 1 inch
F B. Parrish M E

From this state of things the writer would deduce the following: That the fire would be extinguished gradually from bottom or lower gangway upwards, the same burning but very feebly from want of sufficient oxygen, and dying out completely after its being overflown by the carbonic acid gas for a sufficient length of time. This operation would continue so long as there would be any fire at an higher elevation, which would be fed with oxygen from leakages of air, and that introduced as part steam. And whenever there was no fire to manufacture the gas, then its services is rendered unnecessary, as the fire must soon die out for want of oxygen, in the same manner that a human being would from the same cause. Hence, it is possible that the fire was opened out before the last of the fire had been covered over by the accumulated gases before mentioned, notwithstanding that the fire was already extinguished in the lower section. In regard to the action of steam on the fire, I am able to say but very little about. We know that whatever quantity of water was converted into steam, that a portion of the same was likely to have been distributed in the inclosed space in the form of spray, its specific gravity being lighter than that of the heavy gases or atmospheric air, would cause it to fly upwards.

What effect the high temperature in this enclosure would have on this spray I know not.

It is beyond controversy that any fire, large or small, must necessarily die out unless fed with the necessary quantity of oxygen to support combustion.

The question that interests those in mining is this: Does the introduction or injection of steam into a body of fire, already deprived of an additional supply of atmospheric air, as near as can be by the closing of the mine, facilitate the process of nature's own in the matter of extinguishing the fire? And taking it for granted that it does, then to what extent? or, in other words, does the results in the saving of time, &c., pay for the additional expense required in applying the same and in obtaining those results? If it does, the sooner the better, that it be proved and made known so that parties may profit by the information should they be unfortunate enough in having a fire in their mine, with its attendent loss of time and heavy outlays in other expenses.

Steam has been used successfully in the extinguishing of fires in coal mines in Germany and Wales. In the latter it was used as an adjunct, being used to force large quantities of carbonic acid gas into a burning mine, generating explosive gases. It was intended to both neutralize the carburetted hydrogen gas, and at the same time flood the mine with the carbonic acid gas, as it were, and thereby extinguish the fire.

The writer had a conversation, March 26, 1874, with an individual named Jago Jones, who had witnessed the working of such a case, as described above, at a mine in Rhuabon, Derbyshire, North Wales

He gave a brief history of the fire and its extinguishment; also a rough sketch of the mine.

In the case just cited, the steam and carbonic acid gas was a complete success. Subsequently it was tried at another mine on fire, and for some reason, not explained, it did not answer, and its use was abandoned.

In conclusion I would state that the re-sealing up of that portion of the mine that was on fire does not impede the matter of mining coal in the Empire mines, as a new slope had already been opened into the No. 4 workings, connecting with No. 5 slope workings, through which new slope the coals were being hoisted to a point a short distance west of the tunnel between the Hillman and Baltimore seams. Mining was resumed in full blast in September, 1874, and coal hoisted at the rate of 700 or 800 cars per day from the shaft.

BALTIMORE OLD MINES FIRE.

On the fifth day of January, 1874, about ten (10) acres of the surface over the over the old mines caved in.

This mine had been opened over thirty years ago, and mining operations suspended and resumed again as circumstances required. At this time there were but few persons working there, and they were taking out whatever coals they could from pillars, &c., before the final abandonment of the same. There was an underground slope through which some coals were being hoisted from other old workings, and the whole coal then hauled to the surface through a rock tunnel opening.

At the head of the inside slope just mentioned were placed two steam boilers to generate steam for an engine located there to raise coals from the slope; besides that, it being in the heart of winter, the boys, runners and drivers had a fire in an old boiler ring with a grate in the bottom of it.

When the cave took place it was first thought that the fire could be extinguished without much outlay or danger, by cutting passages through the cave to the seat of the fire and the use of water; but after that, some time had elapsed, it was found necessary to employ some other means.

The officials next determined to build an embankment of sand and loose earth around the same, inside, or rather to fill the spaces between the pillars, at the outer edge of the cave, with the material above mentioned.

The sand and earth had to be hauled from the surface in cars and roads laid for the purpose. This operation was commenced and was continued for some five or six months; at times 360 persons would be employed during the 24 hours, during which time no less than 90 car loads of sand and clay would be packed into the spaces between the pillars, each car containing about three cubic yards of earth, equal to 270 cubic yards each 24 hours.

It was thought by the officials that the building of this enclosure around the outer edge of the cave containing the fire, would, first of all, shut off the draught and thereby prevent the rapid spread of the fire, also prevent the gases from the same from falling down and intermingling with the fresh air entering the other mines.

It was found necessary to clear away all loose coal and rubbish from the floor to the roof, and whereever the check tier or bottom coal had been left in any of these openings it also had to be lifted before any of the sand, &c., could be packed in.

At times the imprisoned element would force its way out alongside the pillar of coal. The whole water pressure at their command, consisting of several 2½ inch hose and pipes, fed from a reservoir on the surface with about — feet of head, would then be applied in forcing the prisoner back into his hiding place, and at the same time sealing up the passage behind him by the application of this hydraulic pressure, as it were.

During all this time a great amount of timbering had to be done to sustain the roof, and much bratticing had to be built to confine a passage for a current of fresh air to circulate near the working forces; the whole by this time presenting an appearance putting one in mind of ancient amphitheatres, as illustrated in works of literature, with its double circular enclosures; the inner one built with sand and earth, to keep the monster fire in, and the second to enable workmen to continue their labors. Spectators were enabled to pass around for various purposes between these enclosures, without which no person could be safe in making a circuit, or working.

The ventilation finally had to be obtained by the erection of a fan, 17 feet in diameter, at the No. 2 shaft, which was connected by air passages from the foot of the shaft to the passage above described, around the fire.

Some time in August the company's officials, not feeling quite satisfied with the result of their experiments, thought proper to apply the same method as that adopted by the Lehigh and Wilkesbarre Coal Company at the Empire fire. The closing of every hole and crevice connected with the fire was at once ordered, and in a short time the application of steam was commenced. The thin covering overlying the coal seam at this point gave much trouble, as the roof was caving in at different points daily, for some length of time, thereby allowing the steam and gases to escape to the surface.

The surface having dropped some 10 or 12 feet vertical during the cave, it was so shattered that it was almost impossible to seal up very close a large area of such broken surface, as many of the crevices could not be detected unless by escaping of the steam.

The crevices at the surface show that the carbonic gas generated below escapes with the steam, and in consequence does not fill up inside the enclosure.

It is stated by the officials in charge, that there is no carbonic acid gas to be found lodged at the lower part of the enclosure.

I would here state that the seam at this point does not pitch more than about 15° or 17° on an average. Up to the time of writing this report the fire has not been extinguished.

It is difficult to think how it can be, that if the whole enclosure inside, around the fire, is air tight, or nearly so, that there is no accumulation of carbonic acid gas, notwithstanding that there are some crevices leaking to the surface; but if there are very many of these crevices leaking, and that the steam and gases can be detected escaping in large quantities, then it is very reasonable to suppose that there must be a considerable quantity of atmospheric air entering at some of the lower points of the enclosure. The current formed from the admittance of said air carries with it the heavy gases towards the escape on the surface. In this way the specific gravity of those gases are overcome. How the amount of air necessary to form these currents is admitted is not for me to say; but it is questionable with me, whether a bank of sand, filled or packed into an excavated place on even so light a pitch as 15° can be put in tight enough, and remain so, to keep out a heavy pressure of air, as the same continually settles down. Again, no matter at what point the air is admitted, its specific gravity causes it first to fall to the lowest point, and (as it becomes heated) presses out a similar volume of lighter air at a higher point, that quantity also increasing in volume at a certain rate, as the same is heated, and displacing other air in the same ratio, continuing thus until an equilibrium is found or no air admitted.

The steam used is being generated by the use of thirty-one steam boilers, located at the north end and west side.

The officers in charge of these operations are Messrs. E. W. Weston and A. H. Vandling, general superintendents; Christian Scharar, mining engineer and superintendent; Wm. W. Reese, mining foreman; Ed. Hahn, mining boss; Wm. L. Foot, outside foreman, and Ed. Macken, outside boss.

PROSPECT SHAFT COLLIERY FIRE.

The fire in the Prospect Shaft colliery began on the 24th day of January, 1874. This colliery was comparatively a new one, and not having had its second opening, there were but a few persons working there, and most of them driving in the direction of the proposed second opening.

On the above day, a blast was fired in one of the gangways, from which the gas ignited as on many other occasions, setting the whole face in one sheet of flame or fire.

The mining boss and his fire bosses, with the gangway and air-way men were at once engaged in endeavoring to extinguish the flames with buckets, kegs, &c. The water used had to be hauled into the gangway from the foot of the shaft, except the first few barrels usually kept filled and ready to be used. The fire soon showed that something more must be done to stay its work of destruction. The Babcock fire extinguishers were then tried, still the fire was gaining ground and consuming every thing that was in its way, such as brattices, wooden stoppings, doors and timber.

The men becoming exhausted, they sent to the surface for more aid. A messenger was dispatched to the city of Wilkesbarre, to procure hose from the fire department.

In the meantime the fire had ran back through the upper gangway, nearly five hundred feet from the face, the men still fighting it on their retreat as best they could; they fought it in one place until the second built brattices and doors were burned down, and by their desperate resistance they were only saved. As the fire had, by this time, unawares to them, passed back by them through the return air-way along the anticlinal, like a snake in the grass, and had almost reached the shaft, when the flames were observed through a door, west of the No. 1 north tunnel, leading into the main return connecting directly with the upcast shaft.

The fan being located a short distance from the shaft head on the north side of the upcast, and probably the wind blowing in the direction of the shaft, the dense clouds of wood smoke that were being exhausted by the fan, began to descend the shaft in the intake air.

About twelve o'clock, midnight, no hose having arrived, and the fire gaining headway with such rapidity, it was decided to withdraw the men from the workings immediately, and proceed to fill up the shaft and workings with water.

The mine was an unusually dry one, notwithstanding that the shaft was 600 feet deep. All the water it made was hoisted in a water car, and that used only occasionally.

The first thing done, was the letting into the mine water from the large reservoir, belonging to the mine, and at the same time start their pump at the river to keep up a supply.

Some of the officers thought it would be well to prevent some of the great draught of fresh air from entering the shaft, and endeavored to close up the same; but when a temporary cover had been put over the shaft surface, a powerful explosion took place, blowing the cover into hundreds of small fragments in every direction. Luckily, there was no one hurt by the concussion.

The closing up of the shaft surface was at once abandoned, although explosion after explosion followed each other, but each seemed to have less force, until finally they ceased altogether.

In course of time two other steam pumps were had and placed in position, one on the south side of the shaft, near the canal side, and the other on the north side, near the river side. Each of the three pumps had about 200 feet vertical height to lift their water to the shaft head.

The filling up of the mine required about six days, to close the gangway to the roof, at the foot of the shaft, thereby shutting off the draught; and in ten days it had risen one hundred and thirty (130) feet in the shaft.

The water was afterwards let stand for a short time. After a time, being fully satisfied that the water had been high enough in the shaft to cover the

highest point in the said mine—a sharp anticlinal axis between the north and south gangways—it was thought proper and safe to commence leisurely to hoist the water out of the shaft again, and the roof of the gangways was again in sight March 9.

When the writer was there, March 16, the air was still very warm, escaping out of the mine, and the carburetted hydrogen gas was being pressed out in solid volumes; hence we could not penetrate the working any further than the foot of the shaft at that time. May 21 I again visited this mine, when Mr. William Samuel, the mining boss, accompanied me through the same, so far as we were able to go with safety. We found a good part of the main gangways free from gas, although each other part was full.

There were but a few men working in the mine at the time, who were employed then in reopening the return air-way from No. 1, north tunnel, west towards the upcast shaft.

No lamp was permitted to be used in the mine except safety lamps, and I must say that it is dangerous, unpleasant and difficult enough to work in the many intricate passages of a coal mine even when light is obtained from the miners' usual necked lamp; but the dangers, unpleasantness and difficulties must be much increased when, being compelled by any circumstances to work by the dim light given by a safety lamp, whose wire gauze meshes are so fine and close that there are no less than 728 of them in one square inch, and yet, as small as said light might be, even that could not be had, to do the work on the advance, in the aforementioned return air-way.

We finally came to a place where all the lamps were stationed, with one man in charge of the same. After giving up our lamps to the man in charge of the workmen's lamps, we advanced cautiously in the midst of darkness for quite a distance towards the shaft under the direction of our guide, the mining boss, who, by the way, seemed to be so familiar with this mole passage, that a person would almost suspect him of having a necked lamp or light with him during all this time.

We passed three individuals working in this dark and dismal passage before reaching the face of the works of re-opening.

This air-way had been closed from the effects of the fire; the seam lying at an angle of 70 or 80 degrees at this point, the coals were free and of a slippery nature, and the timber support having been consumed caused it to cave in, falling to a height of about 25 feet or more. The new opening had to be made at the highest point through this fallen material of coal, slate and rock.

There was a small quantity of air screening through this caved in air-way, but not enough to dilute the enormous quantity of gas given off in this mine, hence it was that safety lamps could not be used where those men were then working, the same being full of explosive gases.

The thought could not have been a very agreeable one to meditate over; that the striking and lighting of a single lucifer match anywhere in the mine at that time, except at a few points along the main gangway, would have been sufficient to ignite the whole explosive contents of the said magazine, composed of thousands of cubic feet of the most powerful explosive substance, whereby each human being within its jaws would be instantaneously hurled into eternity.

This state of things, bad as they were, were at the time unavoidable. The above merely shows a faint picture of the many dangers that are encountered by the men whose fortune it is to delve in the bowels of the earth in order to gain for themselves and those dependent upon them the means of living.

I visited this mine again July 28th, when I met Mr. Samuel, the mining boss, and on examination found that the standing gas had all been removed and the driving of the gangways towards the proposed second opening had been again resumed.

On November 20th I had occasion again to visit this mine, and did not find any standing gas in any part of the same, except a small quantity in a narrow passage being driven up towards the summit of an anticlinel axis, where, two days previous, a miner named Savage, had been suffocated through the inhalation of a quantity of said gas.

In examining the north side there we met three parties at work, in driving air-ways and a gangway, and about 30,000 cubic feet of air per minute entering the said gangway. It was measured about five hundred feet back from the face. At or near the face there was a cross-hole—usually called by miners cross-cut or heading—being driven at right angles with the gangway to break through into its parallel air-way.

There was about thirty feet between said cross-hole being driven, and the one last made outside of it, through which there was about 27,000 cubic feet of air per minute passing at the time.

A few feet outside of this last mentioned cross-hole there was placed a check door across the gangway road, and a wooden brattice was built from it in towards the face, with a space between it and the rib or side of four or five feet and carried to within a few feet of the gangway face. This brattice and door forced about eighteen thousand cubic feet of air per minute sweeping around the face, for all that no necked lamps could be used in the face, the men were actually suffering from the effects of so large a quantity of air passing through so small a space, thereby causing such a strong current, with the thermometer down to 33° Fahrenheit or nearly to the freezing point, at the face of the gangway.

On examining the condition of the air in the return air-way, at a point nearly opposite where we measured the intake air, we found about thirty thousand cubic feet of air passing, and so loaded with gas that it would not be safe to risk a necked lamp near it.

It will be remembered that there were but three parties working in this current at the time, but, for all that, the quantity above mentioned was almost to the explosive point, showing that this part of the mine alone generated the fearful amount of nearly two thousand cubic feet of carburetted hydrogen gas per minute. On examining the south side gangway, there were found 21,000 cubic feet of air per minute passing through the inside cross-cut between the air-way and the gangway.

Another matter in connection with the history of this colliery, worthy of note, is this, that not a single life has been lost in it, directly through the explosion of gas, up to December 31, 1874, although there have been some narrow escapes.

I here give one more incident to show to the outside world what the men in charge of this mine have had to contend against. One day, in the fall of the year, there happened to be no work, and the engineer, knowing that there was no person in the mine, stopped his fan for the purpose of examining the condition of its machinery and to overhaul any part requiring it, while there was time to do so without hindrance to the work. In about four hours afterward he had occasion to enter the return air-way, leading from the head of the upcast shaft into the fan, and he thought to himself, "perhaps I would better take a safety lamp instead of a necked lamp." Luckily for him, he did so. As he was approaching the side door into the said air-way he saw the door open, there being no pressure from without on it, and, all at at once, when within four feet of the entrance, he detected

the gas exploding in his lamp, at such a force was it being pressed up out of the mine by the atmospheric pressure alone.

It is hardly necessary to say that, had it not been for the presence of mind or forethought of the engineer on that occasion, there would have been a fearful explosion, resulting in much damage to property, and more than that, in all probability in loss of at least one human life.

Ever since the resumption of work after the great fire a gas pipe, two and a half inches in diameter, has been laid from the foot of the shaft, along the main gangway, to the face, with places to make connections on the same at regular intervals. The same is connected to a column pipe in the shaft, which is fed from the reservoir on the surface. In this manner they are able to combat the gas fires very successfully as yet, although they have had some hard trials, even with this means at their command.

The officers of the company in charge of this mine at the time of the great fire were as follows: Frederick Mercur, general superintendent; Colonel A. G. Masson, assistant superintendent; William Patten, master machinist; James A. Bryden, mining foreman, and William Samuel, mining boss; all of whom are entitled to much credit for their very successful management of so difficult a place; and they must have had many good and trustworthy aids and assistants in their fire bosses and other men in charge of the different departments and shifts, who are also worthy of commendation.

Coal Mined and Sent to Market in 1874.

The quantity sent to market, as per reports received, was 4,200,000 tons exclusive of whatever quantity that was mined and consumed at the mines in various ways, such as by all the mine furnaces, mine locomotives, stationary engine boilers and the sales for company and other houses. Add to this 7.5 for home consumption, which is less than one-half the amount by some statistics published, making a total of coal mined 4,513,847 tons.

Casualties.

There were fifty-seven lives lost in this district during the year 1874, besides one hundred and five persons seriously injured, leaving twenty-nine widows and sixty-nine orphans.

Recapitulation.

	Killed.	Injured.
Inside :—		
Falls of materials—coal, bone, timber, slate and rock	17	25
Crushed by hoisting carriages	2	0
Gas—explosions of	9	32
Blasts in coal	4	6
Mine cars—run over by	9	14
Wire rope breaking and letting bucket down shaft	0	1
Blasting barrel, explosion of, by cleaning	0	1
Fell down shafts	3	3
Blasts in rock	0	3
Powder—burned by explosion of	1	9
Putting of locomotive engine on track and crushed by mule,	0	2
Fell down slope	0	1
Fell through hoisting carriage platform	0	1
Scalded by steam from boiler	1	0

	Killed.	Injured.
Suffocated by inhalation of carbonic oxide gas	1	0
Do. do. do. acid gas	1	0
Do. do. carburetted hydrogen gas	1	0
Burned while working at the Empire fire	0	2
Buried in cave of quicksand and water	1	0
Outside:—		
Fell down at works—limb fractured	0	3
Cars around coal breaker—run over by	1	2
Fell into fly wheel of engine	1	0
Timber—struck on head by falling	1	0
Boilers—by explosion of steam	2	0
Suffocated in dirt shute in coal breaker	1	0
Struck on head by piece of T iron rail	1	0
Total	57	105

Coal Production, Number of Persons Employed, &c.

The following table shows the quantity of coal sent to market, number of persons employed and the number of lives lost in this district in the years 1871, 1872, 1873 and 1874 respectively; also, the ratio of said production to each person employed, the ratio of each life lost and the ratio of persons employed to each life lost, to wit:

	1871.	1872.	1873.	1874.	Total.
				Mined.	
Coal produced in tons	3,000,000	3,250,000	4,232,000	4,513,847	14,995,000
Number of persons employed	9,870	9,807	11,355	13,576	.....
Ratio of coal to each person employed	304	331.4	372.6	332.5	.....

	1871.	1872.	1873.	1874.	Total.
					Average.
Number of lives lost	54	40	46	57	49.25
Ratio of coal, in tons, to each life lost	56,000	81,560	92,000	80,000	77,390
Ratio of persons employed per life lost	182.77	233.26	246.84	238.17	225.26

Table of Comparison.

	England. 1872.	Nova Scotia. 1872.	Nova Scotia. 1873.	Pennsylvania Anthracite Mines. 1872.	Pennsylvania Anthracite Mines. 1873.
Coal produced, in tons	123,293,853	880,950	1,051,467	18,932,265	19,585,178
Number of persons employed	418,088	3,522	4,362	63,000	56,405
Ratio of coal, in tons, to each person employed	294.9	250	241.23	300.5	347.0

	England. 1872.	Nova Scotia. 1872.	Nova Scotia. 1873.	Pennsylvania Anthracite Mines. 1872.	Pennsylvania Anthracite Mines. 1873.
Number of lives lost	1,060	18	73	222	226
Ratio of coal, in tons, to each life lost	116,409	67,763	14,403	85,280	86,660
Ratio of persons employed per life lost	394	271	59	283.8	249.5

Causes of Accidents in Coal Mines.

Much has been written upon the above subject, from time to time, in this and other countries, and yet accidents do take place, and in all probability will continue in some ratio so long as coal will be mined.

But the question for us to deal with under the above heading is this: Can the ratio of these accidents not be changed so that a less number of lives be lost in proportion to the number of persons employed, and more

coal produced to each life lost; or, are those accidents entirely beyond control? If so, then they are at the minimum.

The comparative table, elsewhere arranged in this report, shows that the ratios of coal produced and of persons employed to the lives lost are not as favorable in this country as in England; at least this is the showing for anthracite mining in Pennsylvania.

Next, since we have already found that our record in the above matter does not show a favorable comparison with that of other countries mining coal, we should endeavor to analyze this subject in all its bearings as far as we can, and try to find out the cause or causes of those discrepancies, so as to point out and call attention to those that are the most prolific sources of accidents.

The following table will show the heaviest items in the accident list for the last four years in this district, to wit:

	1871.	1872.	1873.	1874.	Total.
Killed by falls of rock	2	3	2	3	10
Killed by falls of coal	11	12	9	14	46
Killed by falls of mine cars, (inside,)	6	7	13	9	35
Killed by fire-damp explosions	1	8	6	9	24
Killed by falling down shafts	2	3	3	3	11
Total	22	33	33	38	126
Total number killed in the five years	54	40	46	57	197
Total killed exclusive of the above five items	32	7	13	19	71

The above table shows that there were 197 lives lost in this district during the last four years, and that 126 of them were attributed to five items, or classified under five heads. This number equals 63.95 per cent. of the whole accidents, but those were five items belonging to mining inside; so we will now take off those that occurred outside, together with the number that were smothered at West Pittston from the burning breaker; the former equals 27, and the latter 20=47. Then take 126+47 from 197, and it leaves but 24. This shows that the ratio of the accidents, of the five items above cited, equals 81 per cent. of those that occurred inside the mines.

The above table shows in what items those accidents occur and is very suggestive. In the first place, we should observe in how many and how much can the accidents under the above heads be controllable.

I should be inclined to think that those caused by falling down shafts and from mine cars are likely to be more purely accidental than those under the other three items, and little hope can be entertained of their decrease.

Those caused by falls of coal and rock, and by explosions of fire-damp, are more controllable, and I know of no better method to keep down those accidents than either by a law requiring all timbering to be done by a class of workmen especially employed to do such work, as they would necessarily understand the work better in this way, by making of it a specialty. The workmen in the different sections would be more sure to require sufficient timbering to be done to keep their places safe. Or, otherwise, if the law required that ample timber be kept at the mouth of each mine, already cut into the various lengths, and of the sizes required, and further, that each workman in charge of a working place be required to keep a certain number of pieces of timber at hand in his working place at all times, ready for use, and to be required to put up all the timber necessary to sustain the roof and sides, and that he must be compensated for such labor, like any other part of his labor, which could be settled by the adoption of special rules in each place, something very much required.

If either of the systems suggested above were required by law and enforced, then I am of the opinion that that class of accidents would be reduced, unless our present dangers should be increased by a much worse roof, &c., to make up for the difference.

I have not the least doubt but that if miners were paid for timbering, there would be more timber stood, and I think many accidents avoided; as it is now, in many places no compensation is given and no more timber is put in place then can be avoided; as it is considered by the workmen labor for nothing, unless they cannot work without such timbering.

On the other hand, if there was pay for such labor, there would at all times be plenty of the necessary material kept close at hand, and whenever it would be considered necessary by the miner and his mine or fire boss to timber, the same could at once be put in place; whereas if there was no pay, no person would be consulted, because there was no pay for it; for the same cause, no stock of timber would be kept inside at hand, hence, if timber were needed suddenly, the parties must go outside to secure the same, and sooner than do so, the day perhaps pretty well gone, they would run the risk of finishing the day's work, or perhaps the loading of a car or two of coal, to keep their trip or quota for the day.

How often after an accident occurs do we hear it said, "he was only going to finish loading that car, and then he intended to take it down, or put in timber support."

The reason for this is in the fact, that the miners' time in most instances, is money for him, just as in any other calling. He reasons thus: If he should lose a car of coal by timbering, he must pay his laborer the same as if he had loaded the coal, at least the latter is entitled to it; and again, if both must go outside to get their timber, it is still more loss; hence, much of the deficiency in timbering. The miners, where timbering is being paid for, have fewer accidents from falls of material, than those that don't pay.

It is true, that more timber would cost more money to the coal operator, but would the decrease in accidents not make up for the same. I rather think it would, as there is nothing more expensive to a colliery than accidents; they often cause a suspension of operations during the day of the accident, and if the case proves fatal, two more days are lost. During all this time there are several items of expense going on, the same as if the mine was producing coal, and the net saving that the concern makes when working, is also lost. The items above referred to, are the wages of the general superintendent, mining foreman, outside and inside bosses, the engineers, (all except the breaker engineer,) boss carpenter and his gang, boss machinist and his gang, stable bosses inside and outside, track layers, or repair men inside. The wages of the above list are still running up, as I said before, and sometimes other items come in. Besides the above, there is the live stock, they must be fed the same as if working, and the whole capital invested is costing the same interest each of those days, as if the mine was producing coal. Add to all the above, the item of net profit that the colliery should be making, were it working.

The above gives a glimpse of the expenses and loss caused by stoppages to the operator, and goes to prove how little attention is being paid to true mining economy, unless that everything is being done that can be done to avoid those sad accidents. The above is only in relation to the matter in a pecuniary point of view, to say nothing about the first great principle of humanity, demanding all our efforts to save life and limb.

Again, these accidents often cause an irreparable loss to the victims themselves and to those depending upon them for support. The effect of these are also felt more or less in the whole community where they occur, as they have a bearing on it in a social and business point of view.

ACCIDENTS FROM EXPLOSIONS OF FIRE-DAMP.

This class of accidents has increased rapidly of late years. This may be accounted for in several ways. During the year just ended, the sinking of shafts has had a heavy bearing upon this item; as there were four out of the nine lives lost by shaft sinking, equal to forty-four and four-tenths per cent of the whole item.

I wish to call attention to the fact that there are two features in this connection that are seldom if ever taken into account.

First. The workings of the district are in a transitory state, i. e., many years ago there were but few slopes operated and fewer shafts, the workings being mostly on water level. Since that time slopes and shafts have increased, and the old water level openings have been superseded by those deeper workings, some having reached nine hundred feet vertical.

When mining was carried on principally in drifts or water level openings, there was no accidents from fire-damp heard of, and not one in a hundred knew what fire-damp was; but now, since most of the drifts and water levels have been worked out, those same persons are compelled, by circumstances, to go into the deeper workings, subject to many great changes from the condition of things in the old water level workings.

It is the transition from workings having but certain accustomed dangers to those having many new and unaccustomed dangers to contend with, that accounts for much of the increase; because many a person is scorched, some to death, before they really understand enough about fire-damp to take care of themselves. Further, there are many inexperienced persons who enter our mines at present, in different capacities, from other coal fields and callings, that are just as deficient in knowledge of those dangers.

All the persons employed composing that class of inexperience, have a heavy bearing upon the whole item of accidents; they not only endanger their own lives, but those of others as well, and the total danger of any colliery is governed, to a certain amount, by the ratio of the number of inexperienced to the number of experienced persons employed. Let the government and discipline be good or bad, especially so in connection with fiery mines. In our deep workings an increase in accidents is to be looked for, unless we improve in experience, knowledge and discipline as the dangers increase.

As I said before no lives are lost by fire-damp explosions or falling down shafts, or by being crushed by hoisting carriages or rope breakages, or crushed by hoisting machinery, while working in water level workings, yet we see that these items show a large percentage of our mining casualties, and should be attributed to deeper workings.

In all the increase in dangers from deeper workings, none can be avoided very much, unless that of ventilation; and even that cannot be as safe as in water level openings, because irregularities take place in the water level, but if there is no gas generated then no one takes any notice of it, because no accident occurs. It is not so in the deep and fiery mines, everything is right so long as each department is in good working order; but any irregularity tells immediately, as it is likely to cause some accident or other forthwith.

In comparing the accidents of our anthracite mines with those of England and Wales, there are two things, in the writer's opinion, that operate against us, namely: Thicker seams of coal, and being anthracite, and lying at a higher angle of elevation or pitch are more dangerous in many respects. First, the thickness of most of our seams are from five up to twenty feet, and some up to fifty and sixty; in those high seams it is impossible to know

the condition of the roof over head, and the parting being so very smooth little or no warning is had, very often, before a large flag of the same comes down. The height preventing timbering.

This is not the same in smaller seams, where the experienced miner can take some of his working implements, and in his own way, tell almost exactly how the condition of his roof is, and where he can do so, he can easily timber the same.

Again, it is well known that much difference exists between the quality of anthracite and bituminous coal seams, from their brittleness, partings, &c. In the former, each parting between the stratafied layers or beds, and in each cleavage or slip, is so smooth and the quality of coal so very brittle, that it drops off very suddenly, much more so than in the latter. Another matter that must effect our ratio of accident, is this: the difference in experience of the workmen and managers in the cases compared. In England and Wales a very large majority of their underground workmen, are as familiar with their different branches as they can be, thereby having been trained to those dangers and difficulties from their youth.

In this country, especially in our anthracite mines, thousand are employed yearly, who are entirely devoid of any knowledge of mining and its manifold dangers, the natural result must be more accidents than if more skill was employed.

The above items are seldom thought of by persons outside the mines, and especially the public press, but on the contrary, would rather insinuate that most of the accidents are attributable to the ignorance of the victims themselves, or those in charge. It is not the difference in the mental capacities of the workmen, that causes the difference so much as want of sufficient training and experience in the business, the same as in any other profession or calling. It cannot be learned in a day or a year.

Discipline.

The matter of discipline in our mines, perhaps has not attained the high standard that it should have done, and no doubt the deficiency is much to be attributed to the want of proper regulations which is best had by the adoption of special and general rules, and to give them force perhaps they should be provided for by legislative enactment.

It is impossible to govern any institution successfully, unless there is discipline within its workings. The same is true in relation to mining—we need much better discipline.

Inspectors' Reports.

I wish to call attention to their publication and distribution. It is so singular that the author of each manuscript does not receive the proof of his document to look over the same before that it is finally printed, it is always done in all other kinds of printing; what reason, there can be, for not being so in this case, I know not; but it certainly cannot be for insufficient time, for the reports are seldom issued, in less than nine or ten months, from the time of their delivery to the State authority. Those reports for 1873, were out in December, 1874.

It certainly seems very odd to read the description of a plan on page 212, and no plan there to refer to, the same having been misplaced by either the printer or binder to page 122, as in the writer's report for 1873; and many other things have been misplaced or misrepresented in these reports each year, and that looks just as incongruous; but the public little think that the inspectors are deprived of a privilege given to every other author—

that of looking over the proofs. The material in these reports is not any too well arranged when it is sent to the printer, and if any change be made the author should be consulted, so as not to make confusion worse confounded.

It is very singular that there cannot be some established rule or method by which these reports could be distributed to the public, since there are some thousands of copies of them printed each year, at the State's expense; yet even the authors—the inspectors—have to beg for even a single copy, notwithstanding there are scores of interested parties in their respective districts at the same time looking to them for copies of the same. Would it not be proper that each inspector receive two hundred copies annually for distribution? The information given in these reports is much sought after, and each coal operator, mine manager, mine boss, fire boss and miner seeking to post himself in those matters pertaining to his business should possess a copy of these documents each year; and if the State authorities cannot afford to print a sufficient number for distribution free gratis, let them be sold at a reasonable price to pay the expense of the same.

Steam Boilers.

I wish to again call attention to the importance of having separate inspection for boilers. Machinery should also be placed under the same head. We have had several boiler explosions during the year, two of them causing the loss of human lives. Our present system is little better than a name in comparison with what it should be. If the boilers were all insured by a good insurance company, they would have a much diffierent inspection from the present, and in my opinion it is much needed.

I am under the impression that there is an inspector of steam boilers appointed for the counties of Schuylkill, Columbia, &c., at present. Why we have no such law I know not. How much better it would be that provision be made for this in time, when warning is given of apprehended danger, than to wait until some appalling catastrophe takes place, then jump hastily at legislation on the subject. A good system of boiler inspection would certainly be much of a safeguard in a class of accidents against which we are at present almost entirely unprotected.

Surface Openings.

Shafts, 38, including 10 new ones, 2 abandoned and 2 idle; slopes, 27, exclusive of those abandoned; drifts, 11, exclusive of 3 idle; tunnels, 10; local openings, 12; total openings in operation, 96.

Machinery.

Number of steam engines in use, 306, with an estimated horse power of 15,000; mine locomotives, 16; estimated horse power, 380.

Mules.

There are 940 used inside, and 320 outside; total, 1,260.

REPORT OF THE EMPLOYEES' BENEFIT FUND.

At a meeting of the employees of the Wilkesbarre Coal and Iron Company, held at Empire mines the 15th day of September, 1869, the following resolution was adopted:

Whereas, A sad accident has occurred at Avondale, whereby one hundred and eight men lost their lives and left needy widows and helpless

orphan children, who are entitled not only to our deepest sympathies, but also to our charities; and

Whereas, Accidents are frequently occurring to persons engaged in the mining of coal at our own works, which call for acts of charity; and

Whereas, We are informed by Charles Parrish, president of the Wilkesbarre Coal and Iron Company, that the use of the entire works, including the coal, will be given for one day by the said company, for the relief of the Avondale sufferers and the establishment of a permanent benefit fund, we, the employees of the Wilkesbarre Coal and Iron Company, do therefore hereby resolve,

That we give one day's work in the month of September, 1869, to raise a fund to be appropriated as follows:

One thousand dollars for the relief of the Avondale sufferers; the balance to be placed in the hands of trustees, to be used as occasion shall require, for the relief of such persons, employed by this company, as may need assistance.

At a subsequent meeting of the employees of the Wilkesbarre Coal and Iron Company, held at Empire mines, in November, 1869, the following named persons were appointed a committee to make resolutions as to the manner of distributing the fund: Frank Cull, John W. Howells, Thomas W. Miles, William Smith, Robert Rutledge, John Bowden, John C. Wells, John C. Williamson.

At a meeting of the committee appointed to take action in regard to distributing the charity fund, held at the office of the Wilkesbarre Coal and Iron Company, in Wilkesbarre, on the 15th day of November, 1869, the following named persons were present: Frank Cull, John H. Howells, Thomas W. Miles, William Smith, Robert Rutledge, John Bowden, John C. Wells, John C. Williamson.

On motion, T. W. Miles was appointed chairman, and J. C. Williamson secretary. The following resolution for the distribution of the fund was adopted:

$50 to be paid for funeral expenses in case of accidental death, and $3 per week for the term of one year to the widow of such person killed, provided she remains unmarried during that length of time.

$1 per week for the term of one year to each orphan child under 12 years of age, unless otherwise cared for.

$6 per week, during his disability to work, to each man injured in or about the mines.

$3 per week, during his disability to work, to each boy under 16 years of age, injured in or about the mines.

One thousand dollars of the amount earned to be given for the relief of the Avondale sufferers, the balance to be placed in the hands of the Wilkesbarre Coal and Iron Company, they to pay interest on the same, and to be drawn by orders on the company signed by three of the trustees and the secretary.

The 27th day of September having been fixed upon as the day to work, the amount earned was ascertained to be $6,000.

At a meeting of Charles Parrish, president, and the employees of the Wilkesbarre Coal and Iron Company, held at Empire, October 1, 1870, the following resolution was adopted:

That hereafter any person or persons in the employ of the Wilkesbarre Coal and Iron Company for the space of one month, who has not previously contributed to the Benefit Fund, shall so contribute one day's labor before he shall be entitled to its benefits.

At an adjourned meeting of the trustees of the relief fund of the Wilkesbarre coal and iron company, held in Baur's hall, on Wednesday evening, August 21st, 1872, the following order was issued to the employees of the several works of the Wilkesbarre coal and iron company, viz: That the employees of each division of said company are hereby notified to appoint or elect some responsible person to act as trustee until the first of January, 1873. Their successors to be elected in the first week of January and July in each year. The following rules were adopted for the government of the fund for the ensuing year:

First. That there shall be chosen one man from each division of the company to act as trustee, to act in conjunction with the foreman of his division, whose term of service shall be six months, or until his successor be elected. Second. The duty of trustees shall be, that whenever an accident occurs in any of their respective divisions, they shall in two days afterwards report the same at the office of the company, on blanks signed by the trustee and foreman, at the same time giving the date and nature of such accident; and when the person or persons so injured shall again resume work, they shall report accordingly to the office of the company, where an order will be immediately drawn by the clerk for the amount legally due; and in no case whatever shall money be paid unless the above rules are complied with. Therefore it is to be hoped that all the employees will take an individual interest in directing the management of this fund, and care should be taken in the selection of trustees, as it requires a person to be attentive and punctual on all occasions.

The names of parties together with the amounts received respectively, is here omitted.

General Statement.

Amount earned in September, 1869	$6,000 00	
Amount earned in October, 1870	5,030 52	
Amount earned in November, 1871	7,425 36	
Amount earned in October, 1872	8,278 01	
Amount earned in September, 1873	12,237 64	
Amount earned in September, 1874	26,373 28	
Total earnings to October 1, 1874		$65,344 81
Interest paid by company on balance of account to Oct. 1, 1874,		1,214 57
Total		66,559 38
Amount contributed to Avondale relief fund, 1869,	$1,000 00	
Amount of orders drawn to Nov. 1, 1873	26,663 71	
Amount of orders drawn from Nov. 1, 1873, to Oct. 1, 1874, as per foregoing statement	13,672 70	
		41,336 41
Balance in treasury, Oct. 1, 1874		25,222 97

E. B. AYRES, *Treasurer.*

TABLE No. 1.—*List of fatal accidents in the Middle District of Luzerne and Carbon counties for the year* 1874.

Date.	Names of the collieries.	Names of the persons killed.	Age.	Widows.	Orphans.	Cause of Accident.
Jan. 4..	No. 1 shaft, East Nanticoke	Christ. Combes	19	....	....	Killed instantly by falling into an engine fly wheel while it was in motion.
10..	No. 2 shaft, Waterman, Beaver & Co.	Michael Marhan	20	....	....	Killed instantly by a fall of rock while working in a gangway.
21..	No. 3 slope, Baltimore mines.	Matthew Lewis	73	1	....	Killed almost instantly, being run over by loaded mine cars. He was cleaning up the track. Being hard of hearing probably accounts for his being caught as he was.
30..	Port Bowkley Slope	Patrick M'Donald	45	....	....	Killed instantly by large fall of bone, slate and fire-clay, roof. He and his miner were robbing back pillars. The latter barely escaped, besides a driver boy, so sudden was the fall.
Feb. 10..	Nottingham shaft	John Grandsden	48	1	....	Was so severely injured by being run over on inside self-acting plane by mine cars that he died of his injuries in two days thereafter. No doubt he had mistaken the one road for the other, as he walked from one track to the other and was struck by the cars.
17..	No. 3 slope, Hartford col.	Patrick M'Phillips	21	....	....	Killed instantly by explosion of carbureted hydrogen gas. The circumstances of this case were as follow: The mine being idle the fan was not running, which interfered with the ventilation. Phillips being desirous to get some of his working tools, entered the mine and at the foot of the slope was met by the man in charge of the steam pump and he was informed of the fan being stopped and that he (the pump man) had orders not to let any one into that part of the mine. Notwithstanding this, he went into his place. He stated that he had never seen any gas in his place.
22..	No. 4 slope, Empire mines	John Meigs	25	....	....	Was so dangerously injured by being scalded from the blowing off of steam from the safety valve that he died of his wounds in three days thereafter.
Mar. 3..	Diamond shaft, near Empire.	Francis Longstaff	32	1	1	Killed instantly by fall of coal. He and his miner were working at robbing or drawing back pillars, when a small quantity of coal flew off the pillar and caught him, with the above sad result.
10..	Dodson shaft	John H. Carpenter	25	1	....	Was so seriously injured on the head from timber falling upon him that he died of his wounds on the 25th, after fifteen days' suffering.

16..	Empire shaft.....	Michael Harte.....	25	1	5	Suffocated by inhalation of carbonic acid gas while working, one of several hundred more, endeavoring to extinguish the large fire then raging in this mine. He was overtaken by the gas by the breaking of the ventilating fan, and consequently an immediate stopping of the ventilation.
20..	Chauncey colliery.....	Levi Carrichner.....	25	1	5	Was very dangerously injured by a piece of slate sliding upon him from a large body of loose coal. He died the second day after the accident.
26..	Jersey colliery.....	Gomer Evans.....	14	.....		Killed almost instantly by being crushed between mine cars inside the mine.
April 1..	Mineral Spring colliery...	David Davis.....	45	....	2	Killed instantly by fall of bone and rock-roof. He was working alone, and it took an hour to recover the body. He had been cautioned by the mine boss about the dangerous condition of the place and requested to do some more timbering. It appears that he was in the act of taking down some of the bone-roof to make it more safe, when the same discharged the timbers that were under it, hence the fall.
9..	Baltimore old mines.....	Dominick Flynn.....	13	.....		Killed instantly by falling under a trip of empty mine cars, which were being used to haul sand and clay to pack around the outer edge of the fire in the old Baltimore mine.
18..	Enterprise colliery.....	John Dixson.....	62	1	....	Killed instantly by explosion of steam boilers under his care. The accident took place at night and he had no need for any extra amount or pressure of steam, there being nothing working except a fan and one pump. The cause is now and to all appearances will remain a mystery.
25..	Oakwood shaft	Thomas Moore.....	30	.....		Was very dangerously injured by a piece of rock falling upon him from the side of the shaft as they were at work sinking the same. Moore lingered in his pains until May 28, when he expired.
May 8..	Wyoming colliery.....	D. W. Roberts.....	35	1	5	Was so seriously injured from explosion of fire-damp that he died from his wounds the next day. Roberts, in company with six others, were timbering a new shaft and had got within 90 feet of the surface. The coal seam that was penetrated at the bottom generated a large quantity of gas and in laying on planks to form a platform they always left a space empty to allow air to pass through, but when they removed their platform, about an hour before the explosion, they put it too close, in fact did not take the usual care; in consequence gas lodged under it, and an explosion was the result, severely burning seven persons.

TABLE No. 1—Continued.

Date.	Names of the collieries.	Names of the persons killed.	Age.....	Widow.	Orphans.	Cause of Accident.
May 14..	No. 3 slope, Empire mines	Samuel V. Thomas,	24	.....		Killed instantly by a fall of bone-roof. He had been warned by several parties that he should timber his place. At this time he was alone and while in the act of trying to take the bone down he was caught under it, with the above sad result.
19..	Mineral Spring colliery...	John Bowden	10	.....		Smothered in dirt chute in coal breaker. He had just changed places with another boy, and when there was a car being loaded under the chute, it appears he, not knowing the danger, perhaps, remained in it, when almost instantly he was covered over and before they could get him out life was extinct.
25..	No. 2 shaft, Baltimore mines.	Ed. Scantlebery....	55	1	....	Killed instantly by a rope breaking in the shaft. The accident was caused as follows: The shaft had been abandoned for a long time and ever since the first visit of the Inspector of Mines the riding of persons up or down was prohibited. At this time some little work had to be done in the mine below; two men were sent to the foot and two more to the head to send down some clay, and the unfortunate victim and another man got a fireman —a stranger—to let them down on the same carriage as the clay. Through bad management the rope broke and let them both to the bottom, as there were no safety appliances on the carriage, which was only put in temporarily for the occasion. The men had another way to enter the mine by going a long way around.
June 5..	Henry colliery.....	Hopkin Jenkins.....		1	3	Was so dangerously injured by the explosion of a blast in coal that he died the next day. He and another miner were in the act of taking out a blast that had missed fire the day previous.
7..	No. 1 shaft, East Nanticoke	N. O. Johnson.....	28	.....		Was very severely burned from explosion of fire-damp. He and several others were standing at the head of a new shaft which was being sunk, when one of the party threw down the shaft a piece of burning cotton or wick, and an explosion followed, which set the head-house and Johnson's clothing on fire. He died of his injuries and want of care in two days. Vivian was killed at or near the head of the same shaft by a piece of the burning timber falling upon him, about two hours after the explosion.
		Wm. Vivian.....	26	.....		

9..	Audenreid shaft.....	Jas. Williams	35	1	2	Killed instantly by falling down a shaft 500 feet into 25 feet of water. It appears that a small quantity gas had accumulated in the open shaft, and as he was descending upon the water bucket —an old steam boiler—the gas ignited with the above result.
13..	Franklin tunnel.....	Michael Gilroy.....	15	.....		Was suffocated by inhalation of carbonic oxide gas, generated by a mine locomotive. The accident occurred about seven o'clock A. M. The engine was run into the tunnel about 1,000 feet from the mouth at the surface to bring out a loaded trip of cars. The fan engine had not been started for want of a full supply of water, some connections being broken. Very soon the engine, having fresh fire and having the blower on, generated much gas, when the engineer withdrew his engine to the surface; but not until some time after could men enter to bring out those asphyxiated, with the above result.
15..	Pine Ridge colliery.....	Michael O'Brimsky.	30	1	3	Was severely burned by explosion of fire-damp, caused by going into his place without a safety lamp after blasting; the blast had broken down some brattice, hence the accumulation. He died on the 19th, four days after the accident. The attending physician stated that the want of proper nursing had much to do with his death.
17..	Chauncey colliery.....	David Morgan.....	50	1	....	Killed instantly by a fall of bone-roof. A mine car had got off the track in his working place and knocked out a prop, when Morgan and his laborer hurried to the spot to put the car on the track, and not having first stood the prop that had been displaced, they began raising the car, when the roof gave in, with the above result, besides injuring his laborer slightly,
29..	Chauncey colliery.....	John Watkins.....	22	.....		Killed almost instantly by a piece of slate from the roof while working in a chamber.
30..	Mill Creek colliery.....	Wm. Dunn.....	20	.....		Was so seriously injured by being run over by a trip of cars that had ran away on the slope that he died of his wounds in a few hours.
30..	No. 3 slope, Wanamie	John Blacksmith...	57	1	7	Killed by being buried in a body of quick-sand and water that rushed along the gangway from the caving in of an old chamber. The place had been stopped and, as was supposed, enough cover left to be safe; but it so happened that the crop of the seam had been washed off very deep and had been replaced with a large body of quick-sand that had settled in the gully, and no doubt the coal had been worked out close to this sand ere its abandonment. The victim's body was not recovered for several days and nights, hundreds of men working all the time to do so.

TABLE No. 1—CONTINUED.

Date.	Names of the collieries.	Names of the persons killed.	Age.	Widows.	Orphans.	Cause of Accident.
July 9..	No. 2 shaft, D. & H.C.Co., Plymouth.	John Eustice.....	28	1	2	Killed instantly by falling down a shaft, a distance of 140 feet. He and several others were making a joint in column pipe in the shaft, when by some means Eustace lost his balance and fell, with the result above stated.
27..	Prospect colliery.....	Jas. Connel.....	40	.....		Killed instantly by being caught between hoisting carriage and the timber-buntings. He had descended the shaft to learn some particulars regarding the proper time for him to go to work. When ready to ascend he undertook to remove a balance or water car off one carriage, instead of waiting for the next carriage, as he supposed. In the meantime they got ready at the head and the engineer started his engine, with the above result. Had he waited for the next carriage and left the footman attend the foot of the shaft, no accident would have happened.
Aug. 6..	Sugar Notch colliery	John Faucett.....	21	1	1	Killed instantly by being struck on the head with coal flying from a blast. He and his laborer were in a cross-heading and the party that were working in the next place had gone out when a blast was fired in a cross-heading being driven toward the face of said unoccupied chamber, which broke through, the coals from which caused the sad accident.
17..	Nottingham colliery.....	Wm. Beaty.....	28	1	3	Killed instantly by falling between hoisting carriage and side of shaft while the carriage was in motion. Of several persons on the carriage at the time of the accident not one seemed to know what caused Beaty to fall; whether it was caused by a fit of apoplexy or of heart disease is not known, but it is supposed to have been one of those.
19..	Henry shaft	John Higgins.	15	.....		Was injured so seriously by being crushed between mine cars and the side that he died of his wounds on the 29th.
29..	Grand Tunnel colliery....	Patrick Brodrick...	40	.....		Injured so dangerously from a premature blast in coal that he died the next day.
Sept. 5..	No. 10 slope, Sugar Notch colliery.	Patrick Farrel.....	30	.....		Injured so seriously by explosion of a keg of gunpowder that he died on the 14th. He was in the cross-heading preparing a cartridge, when a spark from his lamp dropped into the open keg with the above result, besides seriously, but not fatally, burning his laborer.

	5..	Second opening shaft to Hollanback shaft.	John Opie.....	25	.....	Injured so seriously by an explosion of fire-damp that he died on the 11th of the following month. Opie and four others, including the contractor—Hugh Murrey—had descended into the new shaft to the bottom, a distance of about fifty feet from surface, and in about thirty minutes or so Mr. Murrey, the contractor, being in the habit of smoking, struck a match to light his pipe when immediately an explosion followed, burning the whole five very seriously. They were so near the surface that lumps were not needed.
	5..	Washington colliery.....	John Jenkins.....	24	1 5	Killed instantly by being run over by a trip of mine cars on an outside self-acting plane.
	22..	Laurel Run colliery.....	Jas. M'Dermott.....	35	1	Injured so dangerously by a fall of bone-roof that he died from his injuries on the following day.
	29..	East Boston colliery.....	John M'Fadden	35	.....	Killed instantly by falling down the shaft. He and his partner, a miner, were at the foot of the shaft, and as there was a driver and his mule on the hoisting carriage, they both got on while in the shaft; when the carriage was in motion the mule became unmanageable, and leaning over against M'Fadden pressed him off the carriage and would have done so with the other two had they not laid down flat on the carriage.
	16..	Maffet colliery.....	Henry Hernsel.....	38	1 3	Was severely burned on the face and hands by an explosion of gas, caused, as the mine boss stated, through not obeying the instructions given him by the fire-boss. It was also intimated that the patient lacked good nursing.
	30..	Nottingham colliery.....	Michael Toner.....	35	1 8	Injured so dangerously by being struck on the head by a piece of coal falling from the side of a pillar that he died of his wounds the next day.
Oct.	5..	Nottingham colliery.....	Daniel M'Tigue.....	58	1 6	Killed instantly by a fall of coal. He was in the act of barring out some loose coal after a blast, when suddenly a large piece fell upon him.
	8..	East Nanticoke colliery..	Theo. Matty.....	36	.....	Injured by being run over by a car on column bank, and after a length of time died of his injuries.
	13..	Empire No. 4 slope.....	Peter Snyder.....	30	1 2	Injured seriously by explosion of fire-damp and died of his wounds on the 21st of the same month.
	29..	Hartford colliery.....	Christ. Leaser.....	38	1 2	Killed instantly by the explosion of a blast in coal as he was returning to the fuse to re-touch the same.
Nov.	13..	Boston colliery.....	John Dewire.....	21	.....	Killed instantly by a fall of slate—dividing slate between the two beds of coal. It appears, upon inquiry, that the same piece of slate had been worked upon by the miner and several others with drills, &c., some time previous to the accident, but at that time it came down after giving but little warning and no one touching it, and the unfortunate man ran immediately under it.

TABLE No. 1—CONTINUED.

Date.	Names of the collieries.	Names of the persons killed.	Age.....	Widows.	Orphans.	Cause of Accident.
Nov. 14..	No. 2 slope, East Nanticoke.	Chas. Wilcox.....	23	.....	.....	Injured so dangerously by a fall of coal that he died of his wounds December 27, 1874.
18..	Prospect colliery.....	Hugh Savage.....	30	1	1	Suffocated by inhalation of carbureted hydrogen gas (fire-damp.) He was driving a narrow place, with a brattice to force air to the face, and having recently fired a blast, he advanced to the face or near it, and found a short length of brattice broken off, and in consequence the gas was strong. He and his laborer then retreated. After some time he again advanced, directing his laborer to load the car, &c. The laborer not hearing him at work some time afterward became alarmed, and getting assistance, found that he had fallen upon his face and was dead when found, and there being a little irregularity in the bottom he still remained in the gas. The place pitched about 25° or 27°, and had the floor been regular he would have naturally slid downward when he fell, and escaped the gas.
7..	Chauncey colliery.....	John Phalen.....	38	.....	.....	Injured severely on the head by a fall of slate. His injuries at the time were not considered of a dangerous nature, but proved fatal to him on the 14th.
24..	Wyoming colliery.....	T. M'Gee.....	.....	.....	.....	Killed instantly by being crushed between mine cars. He and two others were going toward the foot of the shaft, and while passing through a door lost their light and M'Gee was crushed between two loaded cars.
27..	No. 5 slope, Empire.....	Anthony Dunlavey.	30	1	....	Killed instantly by being struck by a trip of mine cars that had been let over the apex of the self-acting plane without the rope, through some mistake of the top-men. The unfortunate man had no occasion to travel the plane, as there had been made a good traveling road for men, and orders given requiring each person to use the traveling road instead of the plane.
30..	Warrior's Run colliery...	Daniel Roberts.....	38	1	5	Killed instantly by explosion of steam boilers. He was the engineer, and he, with his fireman, had charge of the same. In the investigation nothing was found that would criminate any one, and yet it is very strange that so violent an explosion should have taken place if all was right, as the boilers were in good condition.

Dec. 7..	Enterprise colliery.....	Thos. Kelley	19	.....	Injured seriously by an explosion of fire-damp. A small quantity of gas had accumulated in the face of an old chamber caused by a cave. As a trip of cars was passing along the gangway the wind was forced through said old face and brought down the gas upon Kelley, who was on the gangway to sprag said cars. His injuries were so serious that he died on the 14th of the same month.
10..	No. 2 shaft, D. & H. C. Co., Plymouth.	Geo. Boor.....	19	.....	Killed almost instantly by a piece of T rail striking him on the head, caused by the chain breaking and letting car down outside plane, breaking said rail, &c.
16..	Hartford colliery.....	Nicholas Coleman..	35	1	Killed instantly by a fall of coal. He and another miner were working partners in robbing back pillars, but his partner was working away some distance from him at the time of the accident.

TABLE No. 2.—*List of accidents not proving fatal, during the year* 1874, *in the Middle District of Luzerne and Carbon counties.*

Date.	Name of colliery.	Names of Persons Injured.	Cause of Accident.
Jan. 4..	Empire shaft.....	Owen Williams.....	Seriously injured on spine by fall of fire-clay or hard pan, while opening a new slope to the fire then raging in the Empire mines.
26..	Hutchison colliery.....	Richard Pierce	Severely injured on neck by fall of top coal.
Feb. 6..	No. 3 slope, Wanamie....	John Bates..... / Hugh Richards.....	Severely injured by explosion of fire-damp, caused by their entering the mine contrary to orders.
9..	No. 5 shaft, D. & H. C. Co. Plymouth.	Matthew Maley.....	Leg broken by fall of rock from roof.
14..	West Pittston colliery....	John O. Jones ..... / Frank Hefferon.....	Were both seriously injured—each losing an eye—caused by a premature discharge of a blast in coal.
16..	No. 1 shaft, Waterman, Beaver & Co.	Samuel Thomas.....	Had both legs broken and otherwise injured by being caught between mine cars and the door which he was attending.
17..	Washington colliery.....	Samuel Heisey	Leg broken by mine cars. While the cars were in motion the sprag caught him and crushed him against the side or rib.
20..	Hutchison colliery.....	Geo. Gallagher.....	Slightly hurt by fall of coal.
26..	Henry colliery.....	John J. Lewis.....	Severely burned by explosion of fire-damp.
27..	Pine Ridge colliery.....	Wm. Skidmore.....	Had small bone of leg fractured by being crushed between mine cars.
28..	Hartford colliery.....	Owen Gilligan.....	Leg broken by falling on railroad track near breaker, while working there.
Mar. 3..	Empire colliery.....	Daniel Mulligan.....	Slightly injured by fall of coal.
4..	Empire colliery.....	Patrick Meighan .... / Thomas Flanigan....	Both severely burned from the falling upon them of embers from the large fire they and others were then combatting.
7..	Enterprise colliery.....	Jas. Manley	Injured severely by fall of top coal.
13..	Lance's colliery	Richard Jones.....	Leg broken by fall of coal.
26..	Pine Ridge colliery.....	John O. Williams	Severely burned on face and hands by an explosion of fire-damp.
27..	Lance's colliery.....	Thos. Murray.....	Foot injured; caught between mine cars.
28..	Henry colliery.....	Michael Hannon	Arm broken and head injured by being crushed between mine cars.
April 1..	Mill Creek colliery.....	Jas. M'Guire	Ankle bone fractured and otherwise injured by blast exploding as he was returning to re-touch the same.
3..	Oakwood shaft.....	Michael Mularkey.....	Injured so severely on arm that the amputation of the limb became necessary. The accident was caused by the breaking of a wire rope in sinking a shaft.
4..	Laurel Run colliery.....	Wm. Jenkins.....	Severely injured by being crushed between mine cars.
4..	Mill Creek colliery.....	John Rogan	Arm severely injured by blasting barrel exploding while cleaning the same.
14..	Mineral Spring colliery...	Wm. Simmons	Leg broken by falling down a shaft, a distance of 20 feet.
22..	No. 3 slope, Wanamie....	Wm. L. Jones.....	Leg broken; caught between mine cars.
23..	Pine Ridge colliery.....	Richard Sheppard..... / Patrick Davis.....	Both severely burned on face and hands by explosion of fire-damp, caused by disobeying orders; firstly, by brushing out of gas, and secondly, by incautiously, not taking the safety lamp to examine after brushing.

	25..	Oakwood shaft.....	Elisha Ninnis.....	Shoulder blade fractured and otherwise injured internally by a fall of rock in sinking a shaft.
	26..	Mineral Spring colliery...	John W. Jones.....	Severely burned on face and hands by explosion of fire-damp.
	27..	Diamond colliery.....	Michael Connor	Ankle severely hurt by a fall of coal.
May	1..	Henry colliery	Wm. Lines.....	Leg broken by falling in the coal breaker, since which time the limb has been amputated below the knee.
	2..	No. 8, Baltimore colliery..	Wm. Cronan	Leg broken by being run over by cars on culm bank.
	5..	No. 1 tunnel, Nanticoke..	Charles Mark.....	Leg broken by a fall of top coal.
	5..	No. 3 slope, Wanamie....	John William.....	Leg broken; crushed between car and side.
	6..	Boston colliery.....	John Burk	Arm broken; mule falling upon him.
	7..	Grand Tunnel colliery....	Michael Quinn.....	Seriously injured by a fall of slate and bone.
	8..	Wyoming shaft.....	Henry Merrit..... John R. Jones..... Wm. Clark ..... Wm. Prisk ..... Jas. Lymer..... John Williamson....	Messrs. Merrit, Jones, Clark, Prisk, Williamson and Lymer were seriously burned at the same time and place as D. W. Roberts, by an explosion of fire-damp. All survived except Roberts. For particulars see report of Roberts' case in Table No. 1.
	7..	No. 1 slope, Wanamie....	John Gavin.....	Leg broken by fall of coal in gangway.
	14..	No. 1 slope, Wanamie....	Patrick Mooney.....	Severely injured between cars.
	19..	Gaylord shaft.....	Wm. Bailey..... Thos. Barnes	Messrs. Bailey and Barnes were both severely injured by the explosion of a blast in rock, while they were in the act of picking out the same after it had missed fire.
	21..	Boston colliery.....	Jas. Kenidy	Severely injured by explosion of a cartridge while he and his laborer were ramming the same into the hole with the butt end of their drill. Such actions need no comments.
	25..	Baltimore, No. 2 shaft....	F. H. Tretheway.....	Seriously injured by breaking of wire rope and letting him and another man, named Scantlebery, to the bottom. The latter was instantly killed. (See table No. 1, for particulars in Scantlebery's case, relative to cause, &c.
	29..	Mineral Spring colliery ..	Jas. Murphy.....	Severely burned by explosion of fire-damp. When returning to chamber after having just fired a blast the gas ignited from his naked lamp, with the above result. He should have had his safety lamp.
June	8..	No. 7 slope, Empire mines	Geo. Cycrinks	Seriously burned by gunpowder; dropped a spark from his lamp into a keg of powder. The above is another example of the carelessness of persons in handling powder in our mines.
	8..	East Boston colliery.....	Daniel Shields.....	Foot severely injured by a fall of coal.
	8..	East Boston colliery.....	Frank M'Cue.....	Leg broken by falling down at mines.
	15..	Pine Ridge colliery.....	Jos. Morris.....	Severely burned at the same time and place as Michael O'Brimsky, by explosion of fire-damp. (See particulars of case in Table No. 1, relating to O'Brimsky.)
	15..	Laurel Run colliery.....	Owen M'Gavin.....	Severely bruised and burned by explosion of a cartridge of powder while he was in the act of ramming the same into the hole with the butt end of his drill. Such actions speak out for themselves.

TABLE No. 2—CONTINUED.

Date.	Name of colliery.	Names of Persons Injured.	Cause of Accident.
June 17..	Grand Tunnel colliery....	Geo. Bennette.....	Shoulder blade fractured while and by assisting to put a mine locomotive on the track.
24..	Boston colliery.....	John S. Edwards.....	Seriously burned by explosion of a keg of gunpowder that ignited by a spark falling from his lamp into the keg. Another case that indicates the need of more care in handling powder.
26..	No. 1 shaft, D. & H. C. Co., Plymouth.....	Michael Fern.....	Leg broken by falling down shaft. He got off at the wrong landing and in his confusion fell down the shaft with the above result.
July 17..	Mill Creek drift	John Walker....	Severely burned by an explosion of gas. It appears that the gas ignited from the furnace fire, and no doubt a small quantity had accumulated in old places when the fire was low in the furnace.
17..	No. 2 tunnel, E. Nanticoke	Evan Morris.....	Seriously injured—lost both eyes—by explosion of a blast in rock while he was returning to re-touch the same.
18..	No. 1, Baltimore colliery..	Bertees Zeller	Leg broken by a fall of coal while attempting to save some tools.
21..	Enteprise colliery.....	Chas. Powell	Severely burned by explosion of gas, as per report, in return airway leading into the fan, He was engineer of said fan and entered through double door from engine house. This took place soon after the mine had caved in very badly, and in my opinion the gas ignited must have lodged in some pocket where the air could not force it away, since that large and solid volumes of it were driven out by the fan when first started after the cave, and the naked lamp of the engineer must have came in contact with the same, else there would have been in all probability an explosion of a greater quantity, &c.
21..	Pine Ridge colliery.....	John Leat	Arms and hands severely burned by explosion of gas, caused by the door-boy leaving the door open for a short time, while the miner was still in the chamber and depending for air on said door.
31..	No. 3 sl., Baltimore mines	John Gallagher.....	Hip severely injured by fall of coal.
Aug. 7..	No. 3 sl., Baltimore mines	Michael M'Cue.....	Injured by fall of coal, but not very seriously.
12..	No. 3 sl., Baltimore mines	Peter Peterson.....	Slightly injured by explosion of fire-damp.
14..	Washington colliery.....	Wm. Fox.....	Leg broken by mine cars.
14..	Pine Ridge colliery.....	Wm. Evans.....	Seriously injured by the explosion of nearly two kegs of gunpowder, which were ignited from a spark that dropped off his lamp.
19..	No. 1 tunnel, E. Nanticoke	H. C. Stiltson.....	Arm broken by a fall of top slate-roof.
28..	No. 2 shaft, D. & H. C. Co., Plymouth.....	Tim. Driscoll.....	Severely injured by a fall of coal.
29..	No. 1 tun. Baltimore mines	Ed. O'Donnell.....	Leg crushed by mine cars near the door he was attending. The limb had to be amputated since.

29..	Grand Tunnel colliery....	Jas. Kennedy	Severely injured by a blast exploding before he and his partner, Patrick Brodrick, reached a place of safety.
31..	Dodson colliery.....	D. D. Reese..... / Thos. R. Jones	Severely burned by an explosion of fire-damp, caused by entering an adjoining chamber without having first examined it relative to gas with a safety lamp.
31..	Diamond old mine.....	Morgan B. Williams....	Severely burned on face and hands by Williams, the mine boss, and his fire boss entering that part of an abandoned mine without using a safety lamp which the fire boss had with him; but he happened to be behind the mine boss, hence the explosion.
Sept. 2..	Grand Tunnel colliery....	Morgan Thomas.....	Severely injured by fall of coal; had one leg broken and otherwise bruised.
5..	No. 10 slope, Sugar Notch colliery.....	Thos. Levan.....	Seriously burned by explosion of a keg of gunpowder, caused by a spark falling into the same at the same time and place as Patrick Farrel. (For particulars see Table No. 1, in Farrel's case.)
5..	Empire shaft colliery.....	Thos. Robbins.....	Seriously injured by explosion of keg of gunpowder, ignited from spark falling into it from lamp.
5..	Hollanback shaft, second opening	Hugh Murray..... / John Oates ..... / Wm. Jorrey	Messrs. Murray, Oates and Jorrey were very seriously injured by an explosion of gas in the same manner, time and place as John Opie, who died of his injuries. (For particulars see Table No. 1, in Opie's case.)
20..	No. 3 slope, Wanamie....	H. B. Young.....	Severely injured by mine cars.
28..	Pine Ridge colliery.....	Stephen M'Donald	Leg broken; struck by a piece of coal from a blast, caused by a patent squib having hung fire.
Oct. 3..	Nottingham colliery.....	Clarence Case	Arm broken; crushed between cars.
8..	Lance's colliery.....	David M. Jones	Slightly burned on face and hands by an explosion of fire-damp.
9..	No. 5 slope, Empire	Evan Jones.....	Severely injured; fell down slope while descending on foot.
12..	Breaker No. 2, Wanamie..	David Fine	Arm severely injured; crushed between cars on breaker head.
12..	Laurel Run colliery.....	Wm. Heycoke.....	Slightly injured by explosion of fire-damp.
17..	Mill Creek colliery.....	Cornelius Conrad.....	Leg broken by mine cars.
20..	No. 1 tun. Baltimore mines	Patrick M'Cabe.....	Slightly injured by explosion of a can, or dinner pail, full of gunpowder while carrying it.
20..	No. 5 slope, Empire mines	Lawrence Casey.....	Leg broken by piece of bony coal falling upon him while ascending slope on carriage.
28..	Henry colliery.....	Peter Higgins	Severely injured by cars in mines.
30..	Maffot colliery.....	Chas. Yocum.....	Slightly injured by explosion of fire-damp, caused by disobeying orders of mine and fire boss.
31..	No. 9 Sugar Notch.....	Samuel Connor.....	Arm broken by fall of coal.
Nov. 7..	Gaylord slope colliery....	Morgan Lewis.....	Seriously injured on head and body by fall of coal.
20..	No. 10 slope, Sugar Notch	Geo. Lavin.....	Leg broken by piece of coal falling upon him.
24..	Diamond colliery.....	Henry Platte	Slightly injured by explosion of fire-damp, caused by disobeying orders.
26..	Conyngham shaft.....	Martin ——	Leg broken in stepping upon hoisting carriage, there being a plank out of the platform.
27..	No. 7 slope, Empire mines	Thos. Temperly.....	Severely burned by explosion of a can full of gunpowder which was in his hands, caused by a spark from his lamp falling into the same.

TABLE No. 2—CONTINUED.

Date.	Name of colliery.	Names of Persons Injured.	Cause of Accident.
Dec. 1..	No. 4 slope, Empire.....	Wm. Meighan.....	Seriously injured by premature explosion of a blast in coal.
3..	No. 10 slope, Sugar Notch	John Cox..... / Gustave Peterson....	Both severely burned by explosion of fire-damp.
7..	No. 1 slope, Wanamie....	John Nast.....	Severely burned on face and left hand by explosion of fire-damp. Fire-damp had not been seen but once prior to this time in this mine.
10..	No. 3 slope, Hollanback..	John Laird.....	Leg broken by fall of coal.
24..	Exeter sh., W. Pittston....	Geo. Phillips.....	Leg broken below the knee by car running over him on culm bank.
28..	Wyoming colliery.....	Terrance M'Govern.....	Leg broken by fall of coal.